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**Impact of Emerging Marketing Channels in  
Agriculture: Benefit to Producer-Sellers and  
Marketing Costs and Margins of  
Banana and Potato Crops in Tamil Nadu**

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## Preface

In India, agricultural marketing has witnessed tremendous changes since the last six decades. It plays a crucial role not only in stimulating production and consumption, but also in accelerating the economic development. There are various challenges involved in marketing of the agricultural produce. There is limited access to the market information; literacy level among the farmers is very low, multiple-channel distribution affects pockets of the farmers and the consumers. The Government funding to the farmers is inadequate. A majority of the small farmers depend upon the money lenders/private agencies. There is no effective organized and regulated marketing system for marketing the agricultural produce. The farmers have to face so many constraints in the market for receiving fair price.

In India, agricultural marketing is crowded with small traders who operate on a small scale in a limited market segment. There are many agents in-between the producers and the consumers such as wholesalers, retailers, labour contractors and brokers in each market system. Size of their business is very small. They seek large margins on small volume of business. Thus, the channels for marketing of agri-producer remain long and fragmented and lack economics of scale. Generally, an average of four to six transactions take place before the produce reaches the consumers, for each transaction involves cost and some margin for intermediaries.

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## Abbreviations

ABC	Agri-Business Centre
AEZ	Agro Economic Zones
AGMARK	Agricultural Goods Marketing
AGMARKNET	Agricultural Goods Marketing Network
APL	Above Poverty Line
APMC Act	Agricultural Produce Marketing Committee Act
BPL	Below Poverty Line
CMS	Cooperative Marketing Societies
CP	Current Prices
CP	Constant Prices
ECA	Essential Commodities Act
EMC	Emerging Marketing Channels
FAO	Food Agricultural Origination
GAI	Gross Area Irrigated
GDDP	Gross District Domestic Product
GDP	Gross Domestic Product
GSDP	Gross State Domestic Product
IAMWARM	Inter Agriculture Management for Water Resources Management
IT	Information Technology
KVKs	Krish Vigyan Kendra
L.MT	Lakh Million Tonnes
MT	Million Tonnes
NADP	National Agriculture Development Programme
NAI	Net Area Irrigated
NCMS	Nilgiris Co-operative Marketing Society
NGOs	Non-Governmental Organizations
NHM	National Horticulture Mission
NSA	Net Sown Area
OBC	Other Backward Castes
PRIs	Panchayat Raj Institutions

RBHs	Rural Business Hubs
RM	Regulated Markets
SC	Scheduled Caste
SHGs	Self-Help Groups
STs	Scheduled Tribes
TMC	Traditional Marketing Channels
UK	United Kingdom
US	Uzhavar Sandhaigal (Farmers' Markets)

## Executive Summary

The area under potato cultivation shrunk and production declined over the period (1985-86 to 2013-14), however, there was increase in yield (kg/ha.) or productivity over the period in Nilgiris and Tamil Nadu because of technological advancement and incentives provided by the government.

The area under banana of Trichirapalli increased from 21.27 percent in 1985-86 to 26.68 percent in 1990-91, thereafter; it declined to 10.84 percent in 2001-02 and 8.35 percent in 2006-07 and 8.87 percent in 2011-12. The area under banana declined by 12.4 percent during three decades due to urbanisation of Trichirapalli and conversion of farm lands into real estate. The yield rate (kg./ha.) of Trichirapalli district is higher than that of Tamil Nadu. There is overall decrease in area, production and increase in productivity (kg./ha.) of banana in Trichirapalli district over the period of time.

A majority of the farmers are growing banana crop among the TMC (98 percent) and EMC (87 percent). 70 percent of OBC farmers belonged to TMC and 54 percent of farmers belonged to EMC, respectively. This implies that the majority of the farmers cultivating banana in Trichirapalli district are Hindus. Farmers who belonged SC/STs also participated in cultivation of banana in proportion to their size in the population.

96 percent and 93 percent of farmers are growing potato in Nilgiris district for TMC and EMC respectively. The SC farmers who cultivate potatoes form 24 percent and 20 percent in TMC and EMC respectively. The ST farmers constitute 14 percent and 13 percent for TMC and EMC respectively. More than 50 percent of farmers who cultivated potato in Nilgiris belonged to OBC category.

68 percent of TMC and 73 percent of EMC of farmers are in BPL category. They live in kuccha and semi-kuccha houses (52 percent of TMC and 53 percent of EMC). About 48 percent and 47 percent live in pucca houses. About 64 percent and 73 percent use the mobile phone. But

computer and internet facilities are used by a small percentage. It is observed that the majority of them are having poor knowledge to use the modern technology and they do not have adequate marketing channels in the district.

The median sizes of farms under banana in Trichirapalli are 2.82 ha. and 2.62 ha. for TMC and EMC categories. More than 80 percent own land and leased out land is only 14 percent. And 71 percent of area in the TMC is irrigated and 66 percent of area in the EMC is irrigated through groundwater. Land irrigated through surface water is not much (9.35 percent in TMC and 17 percent in EMC).

The medium size of farm in Nilgiris district is 3.27 ha. in TMC and 4.61 ha. in EMC. The farmers who own land in the sample farm 50 percent and 64 percent in TMC and EMC respectively. The leased land accounted for 50 percent and 36 percent in TMC and EMC respectively. Nearly, three-fourth of the area under potato is irrigated with groundwater in Nilgiris. Only a small area is irrigated with surface water.

A majority of them (TMC, EMC) cultivate groundnuts. Next to groundnuts, they prefer to cultivate banana; about 41 percent and 43 percent are marginal farmers. The small farmers constitute 29 percent and 30 percent among the farmers. The medium size farmers form 26 percent and 19 percent.

During kharif season, the majority of the farmers grow potato, beetroot, carrot, cabbage and garlic. Generally, cauliflowers, beans, beetroot and cabbage are growing during rabi season. A majority of the TMC farmers grow cauliflower during rabi season. Among EMC farmers, 44 percent, 28 percent and 23 percent are small, medium and large farmers respectively who are engaged in potato cultivation during kharif season. Carrot is a main vegetable cultivated by among small (33 percent), medium and large farmers (12 percent). During rabi season, 18 percent and 14 percent of large and medium farmers grow beans.

The small and semi-medium farmers occupy the highest share of 36 percent of TMC and 47 percent of EMC, and are followed by marginal farmers who occupy moderate share in banana cultivation. For the potato crop, small and semi-medium farmers found to be 40 percent and 20 percent in TMC and EMC respectively. On the contrary, the lowest share is occupied by large farmers. It is found in the study that majority of the small and semi-medium farmers use land for cultivators of banana and potato crops in a productive way.

The consumption of fertilisers for banana crop is estimated to be 138.6 kg/ha. and 144 kg/ha. for TMC and EMC respectively. In the case of potato crop, it was 533 kg/ha. and 556 kg/ha. Banana crop cultivation depends on ground water and canal water source like Cauvery water sources; but for potato crop cultivation farmers depend upon ground water and surface water.

The share of hired labour cost in total labour cost incurred by banana growing farmers is 55.5 percent and 62.3 percent for TMC and EMC respectively. It is 54.6 percent and 73.9 percent respectively for potato growing farmers. Banana growing farmers incur more labour cost than potato growing farmers. The total labour cost for banana crop is calculated to be Rs.46,792 per ha. and Rs. 45,568 per ha. for both marketing channels and it is Rs.36,349 per ha. and Rs.38, 539 per ha. for potato growing farms. The banana cultivators spend more on labour cost than potato cultivators due to long gestation period taken for cultivation of banana crop (12 months) than potato crop (3 months).

The total cost of cultivation per hectare incurred by banana cultivators worked out to Rs.84, 803 and Rs.79, 629 for TMC and EMC, respectively, whereas, for potato crop, it worked out to Rs.83, 300 and Rs. 87,927. It is found that banana cultivators have incurred higher cost hired labour, which accounts for 30.64 percent and 35.67 percent for TMC and EMC respectively.

The production for banana crop worked out to 24,500 quintal for TMC and 6,670 quintal for EMC while, production for potato crop is worked out to be 14,593 quintal and 5,760 quintal for both the channels. The overall productivity of banana crop worked out to be 173.51 qt/ha. and

165.92 qt/ha. for TMC and EMC respectively. But for the potato crop, it is found to be 89.09 qt/ha. and 82.53 qt/ha. The banana cultivators in the study area do not believe in emerging marketing due to new introduction. Emerging marketing are expecting quality in product; top priority will be given to high quality product only, otherwise, the product will be rejected by EMC in the farm field alone. On the other hand, in the TMC, traders also accepted the moderate and high and low quality products.

The farmers growing banana realised a gross return of Rs. 2,59,780 and Rs. 2,85,970 per ha. for TMC and EMC respectively, while it is Rs. 1,42,675 and Rs.1,38,771 per ha. for potato cultivators. It is found that the EMC cultivators are enjoying higher gross return (9.16 percent) than TMC for banana cultivators. But the potato cultivators under TMC are enjoying higher gross return (2.73 percent) than that of potato cultivators under EMC. The average yield of banana is 173.5 qtl./ha. and 166 qtl./ha., whereas that of potato crop is 89.1 qtl./ha. and 82.5 qtl./ha.

The cost of cultivation for banana crop is Rs. 84,803 per ha. and Rs.79,628 per ha. for TMC and EMC. But for the potato cultivation, it is Rs.83,300 and Rs.87,927 per ha. Among the banana growers, TMC farmers spend more amount of Rs. 5,175 (6.10 percent) than EMC farmers. TMC farmers spend more amounts for banana crop. Within potato growing farmers, EMC farmers spend more amount of Rs.4,627 (5.26 percent) than TMC. This implies that the EMC farmers incur higher cost on cultivation than TMC farmers.

The market prices received by banana cultivators are found to be Rs. 1197 and Rs. 1120 for TMC and EMC, respectively. Within the marketing cost, commission is the leading cost incurred by the sample farmers, which is Rs.18 per quintal for TMC; transport cost is Rs.12 per quintal, while it is Rs. 3.12 for EMC. The average net price received by banana crop farmers is Rs.1164 for TMC and Rs.1116 for EMC. It is observed that the majority of the sample farmers only prefer TMC system.

The average market price received by potato cultivators worked out Rs.1320 and Rs.1187 for TMC and EMC, respectively. TMC farmers have spent more on marketing cost than that of EMC.

The commission is one of the important costs in TMC, while there is no commission charge in EMC. The transportation cost is calculated to be Rs.51 and Rs.46 for TMC and EMC, respectively.

The Benefit-Cost ratio for banana cultivators is 5.78 percent and 5.09 percent for EMC and TMC, respectively. But for the potato cultivators, it is 2.25 percent and 1.44 percent. The banana cultivators benefited more than the potato cultivators.

About 26 percent of TMC and 27 percent of EMC banana cultivators had chosen due to the force of habit. Remaining 20 percent cultivators had chosen such a marketing channel due to the influence of their friends. For potato cultivators, 24 percent and 27 percent preferred such a marketing channel because of assured sale.

About 76 percent of TMC and 67 percent of EMC farmers reported that the post-harvest losses are main problems for all banana cultivators. The post-harvest losses are arising due to the perishable nature of the commodity and lack of storage facilities in the farm field.

About 78 percent and 93 percent of the farmers were of the opinion that the long distance to market place is one of the important causes. A majority of them (70 percent and 87 percent) expressed the view that they wait some times for better prices; if there is no increase in prices, they incur huge losses. In the case of potato cultivators, 66 percent and 67 percent emphasized the perishable nature of the commodity and 76 percent 93 percent of them reported lack of storage facilities in the market as a major handicap. Lack of storage facilities, long distance from farm field to market place and perishable nature of the commodity in the both the districts are the major problems faced by the sample farmers during post-harvest period.

A majority of the banana and potato cultivators for both TMC and EMC reported that they received information regarding prices at the time of sale alone. About 80 percent of the potato cultivators for both marketing channels reported that they accepted existing price in the market. Banana cultivators, in both TMC and EMC system reported that they received information

regarding existing price in the market. It is noted that the majority of the potato cultivators received correct information regarding price than that of banana cultivators in both marketing channels.

Among banana and potato cultivators, about 50 percent of banana cultivators in TMC expressed the view that commission agents /whole sale dealers/ retailers are involved in price fixation. On the other hand, 40 percent of banana cultivators and 47 percent of potato cultivators in the EMC reported that self-help groups and retailers participate in price fixation. It is observed that the majority of the sample farmers in TMC depend upon agents (like commission agents /whole sale dealers/ retailers) than farmers in EMC in the study area.

A majority of the banana cultivators sell their produce within the State as Trichirapalli is famous for banana cultivation. Within the district the farmers intend to sell their produce in Kattuputhur Co-operative Banana Market. On the contrary, potato cultivators sell their produce within the district and neighbour States like Kerala and Andhra Pradesh. A majority of them sell their produce in Metupalayam co-operative potato market federation and to other private agents and Kerala whole sale dealers.

About 73 percent and 87 percent of banana and potato cultivators reported that they received inputs from buyers in EMC. On other hand, in both the districts TMC cultivators reported that they received minimum level of inputs than in EMC for banana and potato cultivation. A majority of them reported that they utilised the money for purchase of fertilisers, pesticides alone and not for other purposes. About 48.3 percent and 50 percent of banana cultivators received fertilisers from the buyer. About 84 percent and 50 percent of potato cultivators belonging to both the marketing channels borrowed the amount from buyers.

About 74 percent and 80 percent of banana cultivators and 40 and 80 percent of potato cultivators (TMC and EMC) expressed the view that the conditions of the roads are very bad. A majority of them in Trichirapalli expressed the view that they sell away their produce within a distance of 10 to 25 kms.

For the potato crop, they travel 10 to 50 kms for selling their produce from hilly area to plains. A majority of them reported that they sell their produce in Mettupalayam co-operative market and to private agencies in Nilgiris district. It may be noted that the majority of Nilgiris farmers travel long distance 25 to 50 KMs to sell their produce than farmers of Trichirapalli district (10 to 25 KMs).

About 82 percent and 80 percent of the banana cultivators and 42 percent and 73 percent of the potato cultivators in TMC and EMC respectively reported that there is lack of godown facilities. A majority of them reported that they need adequate godowns to preserve their farm produce.

Farmers reported that they do not have any adequate cold storage facilities. About 36 percent and 67 percent of banana cultivators and 44 percent and 73 percent of potato cultivators of both the channels respectively expressed that cold storage facility not available in the market.

About 50 percent and 82 percent of banana and potato cultivators of TMC depend upon in the commission agents and 88 percent and 80 percent of EMC cultivators reported that nearly three to four kinds of agents are involved in the buying activities. In EMC, 70 percent and 77 percent reported that they have dealing with SHGs/ direct sale respectively. 76 percent and 73 percent of the cultivators in the EMC their produce without any intermediaries.

74 percent of TMC and 93 percent of EMC cultivators sell their banana produce within the district. A majority of them sell in Trichy open market, Kattuputhur banana crop co-operative society. In the case of potato crop, majority of them sell in the Mettupalayam potato co-operative society. The remaining cultivators sell their produce to Kerala wholesalers and other State sellers.

About 100 percent and 80 percent of banana crop cultivators and 74 percent and 80 percent of potato cultivators of TMC and EMC respectively agreed and reported that the government should help them by fixing fair market price.

About 100 percent and 74 percent of TMC farmers reported that the government should stop the involvement of commission agents in marketing the produce. About 88 percent, 80 percent

of banana cultivators and 60 percent and 80 percent of potato cultivators (TMC and EMC) reported that the government should create cold storage facilities. A majority of them expect that government should interfere in the problem and has to enact the measures to ameliorate the situation.

About 48 percent and 40 percent of banana cultivators and 26 percent and 40 percent of potato cultivators reported that produce of good quality is accepted. A lot of farmers accept the TMC is a better marketing system than the EMC system.

The popularization of EMC in the market, the government can face a number of problems. Immediately, we cannot change the farmer's regular practices in the market. The farmers have to be induced by the facilities like subsidies, physical and financial supports for spending among the farmers EMC. About 40 percent of banana cultivators reported that they are needed support for the EMC farmers.

About 56 percent and 20 percent of banana cultivators of TMC and EMC reported that they are willing to reduce the role of the commission agents. This indicates that the commission agents give more hurdles to the farmers. The government should take more steps to reduce commission agents. About 24 percent and 13.3 percent of TMC and EMC reported that they are provided with cold facilities for potato crop. It is noted that the majority of the cultivators in could not get adequate cold, storage facilities.

## **Policy Implications**

As a result of the impact of emerging marketing system, benefit from it producers-sellers of banana and potato crops. The farmers and consumers are really exploited by the middle men during the transaction of commodities in the traditional marketing system. Over a period of time in spite of a number of acts, rules and regulations enacted by the union and state governments in India there is not much improvement in the farmers' level of living. In India, the agriculture and other markets

are fully controlled by middle men and whole sale dealers. Therefore, there is urgent need for the government intervention to address the concerns of the farmers. The main objective of the emerging marketing system is to promote direct selling of agriculture produce in the market. The crucial objective of emerging marketing system is increasing profits to the farmers in Tamil Nadu. Against such backdrop, the following are some of the specific policy suggestions.

- The Government should encourage the direct selling of agricultural produce in the market
- The government should build rural infrastructural facilities to connect the rural areas to market place.
- The cold storage facilities may be made available at least in every village panchayat at free of cost.
- Government should open procurement centres at least within a distances of 10 kms at the time of harvest seasons of banana and potato crops.
- Government can fix the price rate for banana and potato crops based on cost-benefit ratio.
- Government can create banana processing company in Trichirapalli district because of the high production of banana crop in the district.
- Government should create potato processing company in Nilgiris district.
- The government should create the procurement centres at different hill stations in Nilgiris district to avoid harvest losses for farmers during transportation.
- Government should encourage farmers through subsidies.
- The co-operative system is to be strengthened for selling their agricultural produce (banana and potato crops) in the districts.
- The separate board of inspection committees to be established at every block level to control the role of middlemen.

- Awareness camps are to organised by the government, corporate companies and NGOs among the farmers and consumers.
- The agricultural marketing system to be totally controlled by the union and state governments for the welfare of the farmers and consumers and for controlling inflation.
- The middle men and wholesalers to be controlled by the government with the help of strict rules and regulations. The rules and regulations are implemented rigorously by the government officials.
- Government to give compensation to the farmers whenever there is damage to crops due to heavy rainfall (if any) for banana cultivators and land slips for potato cultivators.
- Price information to be given to the farmers at the village level.
- Regulated markets to be strengthened in Tamil Nadu for the welfare of the farmers.
- Government should make export zone for banana crop in Trichirapalli and for potato crop in Nilgiris districts.
- The export of bananas and potatoes through CARCO to be provided incentives.
- In the export of bananas and potatoes to the foreign countries, the government should provide guidance and support to the farmers.

In Tamil Nadu, traditionally, the farmers have been using the TMC system because of customs and habits of the farmers. Therefore, they are familiar with system. The conclusion is that the majority of the sample farmers in the study area are used mostly TMC and not EMC. There is no don't that the EMC will promote the marketing of quality produce (e.g., bananas and potatoes) and will same the producers-sellers from exploitation by middlemen (e.g., commission agents).

# Chapter I

## Introduction

In India, agricultural marketing has witnessed tremendous changes since the last six decades. It plays a crucial role not only in stimulating production and consumption, but also in accelerating the economic development. It assumes importance as the multiplier of agricultural development. The important thing to be noted here is that increasing demand for those goods whose prices are relatively high induces the farmer to cultivate crops where returns are higher.

In olden days, before the introduction of the money, the barter system was in vogue, and with the introduction of money, it became a medium of exchange and in addition to this there were changes in the farming pattern. The self-sufficient village economy transformed itself into market economy where the production was carried on for market. Trade in olden days was a trade in surplus. Hence, it did not affect the basic self-sufficiency of the village. In India, an effective marketing system becomes the essential key to the entire nation (National Planning Committee, 1947).

According to Thomson (1951), agricultural marketing involves the movement of produce from the farmers to the consumers and the effect of such operation on farmers, middlemen and consumers cannot be avoided. There are two kinds of marketing namely, product-marketing and factor-marketing. In the product marketing, farmers, village traders, wholesalers, processors, importers and exporters-marketing co-operatives which regulate the market committees and retailers are involved. The factor-marketing includes manufacturers, distributors, importers and exporters and others who make available various farm production inputs to the farmers.

An efficient marketing system will increase the income level of the farmers and satisfaction of the consumers. The movement of agricultural produce from the farmers to

the consumers at the lowest cost is decided by the farmers/producers. A consumer derives maximum satisfaction when goods are available at the lowest cost.

The modernization of agricultural market is essential for the development of the farmers and consumers in India. There has been a need for intensive policy measures for the agricultural marketing in the recent days. The livelihood of farmers as well as local traders are threatened due to the growth of the modern organized market. Globalization and liberalization of the market economy are reducing the role of the State in the globalised economic system. Alternatively, the role of the private sector and the corporate sector has increased due to the high competitiveness in the market economy. The modernization of the market system is offering useful economic opportunities to the farmers, the small scale producers and the consumers in the food chain process. A new buyer in the rural area is competing for the farmer's produce. Therefore, we need modernization of procurement system and there is also a need for integrated approach for modernization of supply chain to the small scale producers. They are ready to participate in the growth process of the Indian economic development (World Development Report, 2008).

A good marketing system is very useful for the development of agricultural sector. This system is one of the factors that determine the economic development of the nation. The determining factors are proper marketing system, and the active role that are profitable to the farmers. In addition to these, a well organized agricultural marketing is very helpful to the farmers for the promotion of their well-being. The marketing system and the government help the farmers and the consumers attain the maximum benefits. In recent years, some of the horticultural crops have played a very crucial role in the progress of the farmers. In India, the farmers are changing their cropping pattern from foodgrains to horticultural crops due to huge profits that they are able to enjoy. Horticultural crops are one of the driving forces of the Indian economy in the recent days and also there is the demand for those crops in the country as well as in the foreign countries. The food habits

of the common man is changing from food to fruits and vegetables in India. These items are sought daily by the rural and the urban Indian people.

## **1. Horticulture Crops form the Growth Driver of the Indian Agriculture**

The National Horticulture Mission (NHM) covered 18 states and three UTs during the Eleventh Five Year Plan. The aims of the NHM are to achieve the holistic development of the horticulture sector. During the Eleventh Plan period, 16.7 lakh ha. of land was brought under high value horticulture crops. In recent years, the area and the production of horticultural crops has increased in all-India and Tamil Nadu.

Horticulture is an important sector, which acts as a driving force of growth of the Indian economy. India is producing 257.2 MT of horticulture produce at present. The area under horticulture is growing by 3.8 percent and the rise of the production has been 7.6 percent per annum during the last few decades. The main objective of the NHM is to improve the production of fruits and vegetables in India for self-sufficiency. There was improvement in the production of the horticultural crops by 28 percent from 2001-02 to 2011-12. NHM has mainly covered fruits and vegetables.

Fruits are one of the essential commodities nowadays. We are producing 13 percent of the world production of fruits. Fruits like mango, banana, papaya, sapota, pomegranate, acid lime and aonla are leading in the world production. Fruits account for 30 percent of the total production of horticultural crops in India. The area under fruit crops was 6.7 million ha. during 2011-12, which was 29 percent of the area under horticultural crops. The area under these crops had increased from 4.0 million ha. in 2001-02 to 6.7 million ha. in 2011-12 and the increase in the production was from 43.0 MT to 76.4 MT.

Vegetables play a very crucial role in horticulture. They have low gestation period and generate high income to the farmers. These crops had occupied an area of 8.9 million ha during 2011-12 with a total production of 155.9 MT. The production of vegetables

increased by 77 percent during 2001-02 to 2011-12. At present, more than 40 kinds of vegetables are being cultivated in different parts of the country, and the important vegetable crops are potato, tomato, onion, brinjal, cabbage, peas, chilies and beans.

West Bengal (15 percent), Uttar Pradesh (12 percent), Bihar (10 percent), Andhra Pradesh (8 percent), Madhya Pradesh (6.5 percent), Gujarat (6.4 percent), Tamil Nadu (5.8 percent), Maharashtra (5.7 percent), Karnataka (5.0 percent) and Haryana (3 percent) contribute, about 77.4 percent of the total vegetable production in the country.

Potato and banana crops have been selected for the present study and the production of these two horticultural crops has greatly improved in the recent years. Potato is a major vegetable accounting for 27.0 percent followed by tomato (12 percent), onion (11 percent) and others (25.4 percent) in the country. India is the second largest producer of vegetables after China and is a leader in the production of vegetables like peas and okra.

The area under banana cultivation increased from 27.0 percent in 1991-92 to 32.6 percent in 2012-13. The production also increased from 20.3 percent to 34.2 percent during the same period. During 2012-13, the production in Tamil Nadu was 14.3 percent and 19.38 percent respectively of the total share of India. The area under potato increased from 20.3 percent in 1991-92 to 21.6 percent in 2012-13 in India. But the production declined from 31.1 percent to 28 percent (Indian Horticulture Database, 2013).

In India, the per capita availability of fruits increased from 114 per person in 2001-02 to 172 per person in 2011-12. In the case of vegetables, the trend had changed from 236 to 350. The production of fruits increased from 43 MT in 2001-02 to 76 MT and the production of vegetables increased from 89 MT to 159 MT during the same period (Economic Survey 2011-12). It may be noted that the production of horticultural crops has witnessed sizable increase in Tamil Nadu and all-India.

Marketability of fruits and vegetables is a challenging one in the recent years due to high competition in the open-market economy. Particularly, horticultural crops are facing many constraints in India. The Government of India has given high priority to the NHM programme, but it could not reach even the grassroots level.

### **1.1 Present Conditions of Agricultural Marketing in India**

There are various challenges involved in marketing of the agricultural produce. There is limited access to the market information; literacy level among the farmers is very low, multiple-channel distribution affects pockets of the farmers and the consumers. The Government funding to the farmers is inadequate. A majority of the small farmers depend upon the money lenders/private agencies. There is no effective organized and regulated marketing system for marketing the agricultural produce. The farmers have to face so many constraints in the market for receiving fair price.

There are several complexities involved in agricultural marketing as agricultural produce involves risks like perishability. The agricultural produce is seasonal in nature. The pricing of the produce depends on factors like seasonability and perishability. In addition, it depends on the demand and supply also. All these factors have their impact on agricultural marketing.

In India, agricultural marketing is crowded with small traders who operate on a small scale in a limited market segment. There are many agents in-between the producers and the consumers such as wholesalers, retailers, labour contractors and brokers in each market system. Size of their business is very small. They seek large margins on small volume of business. Thus, the channels for marketing of agri-producer remain long and fragmented and lack economic scale. Generally, an average of four to six transactions take place before the produce reaches the consumers, for each transaction involves cost and some margin for intermediaries. The price spread between the consumers and the producers become large, without any real value addition. Some of the middlemen are

found to render no real services and they simply earn rent. Even the APMC Act and the Model Act have failed to deal with that matter in Tamil Nadu and in the other parts of India. So the producers feel that they do not get value for their produce and the consumers feel that they have to pay higher price.

Agricultural marketing in India suffers from inefficiency. There is also the problem between the price received by the producers and price paid by the consumers. Thus marketing has fragmented the long marketing channels; infrastructure is poor and added to it are policy distortions. The markets are not vertically integrated (Chand, 2006). In the total value added in production and marketing, the share added in the post-harvest phase is rising.

## **1. 2. Background of the Study**

Agricultural market reforms have been introduced in India since the Eighth Five Year Plan (1992-97). As the Government needs to depend more on market forces for price stabilization and regulation, planning is now indicative more on private sector as it has a greater role to play. Normally, the market mechanism favours the richer sections of the society and the poor growers always remain at the receiving end. Hence, under the new mechanism, provisions have been made to make the markets friendly towards the growers by fixing the minimum support prices or else, the efficiency of production, skill formation, adoption of technology and generation of marketable surplus will be adversely affected. It has to be accepted that no mechanism in the market can equally distribute the fruits of development to all parts of the country at a time.

Over the years, the Government of India set up several Committees and Expert Groups to suggest the direction of reforms in the field of agricultural marketing. The first in the line was Expert Group on Agricultural Marketing (Acharya) constituted by the Union Ministry of Rural Development in 1998. Following the constitution of this Expert Group, a major structural change occurred leading to the transfer of agricultural marketing division of the Union Government from the Ministry of Rural Development to the

Ministry of Agriculture. In December 2000, the Union Ministry of Agriculture constituted an Expert Committee on Strengthening and Developing Agricultural Marketing System in the country under the chairmanship of Sri Shakneral Guru. This Committee (Guru Committee) reviewed the entire system of agricultural marketing in the country and submitted its specific recommendations to the Government in June 2001. The Expert Committee's recommendations included various legislative reforms as well as reorientation of policies and programmes (Government of India, 2001).

In India, with growing distortions in the supply chain for agricultural commodities, there is the need for greater efficiency in the supply chain. The emerging marketing channels are supposed to reduce the transaction costs and ensure that the high margins that certain intermediary agents get in the regular marketing channels are reduced. Some of the emerging channels include group-marketing, e-trading, direct marketing, contract farming, modern terminal markets, future trading, ITC Choupal, self-help groups and NGOs in the marketing chain.

The functions of the agricultural market are considered as the main planks of economic development in a state like Tamil Nadu. An efficient marketing system is indispensable for the success of the agricultural production programme, which has been launched in the recent years. Marketing is an important link in the chain of production activities of agriculture sector. Organized marketing therefore, is a precondition to sustain production programme, more particularly, in respect of horticultural production. Marketing of horticultural crops in Tamil Nadu is largely unorganized and it is predominantly in the hands of the intermediaries such as retail traders, wholesalers, the pre-harvest contractors and others.

### **1.3. Review of Literature**

The efficiency of marketing for fruits and vegetables in India has been of significant concern in the recent years. Poor efficiency in the marketing channels and inadequate marketing infrastructure are believed to be the causes of not only high and fluctuating consumer prices, but also too little of the consumer rupee reaching the farmer

(Kaul 1997, Ashturker and Deole, 1985). Indian farmers typically depend heavily on middlemen particularly in fruits and vegetable marketing. The producers and the consumers often get a poor deal and the middlemen control the market, but do not add much value. There is also massive wastage, deterioration in quality as well as frequent mismatch between demand and supply, both spatially and over time (Subbanarasiah 1991, Singh et al. 1985).

Fruits and vegetables typically constitute an essential part of the daily diet in India and they are in great demand round the year from most sections of the population. The commercial value of fruits and vegetables in terms of direct consumption, processing as well as trade has risen substantially in recent years. Their economic importance has also increased and high labour intensity in the production of most fruits and vegetables production also makes them important from the employment angle as well (Sharma 1991). Increase in area allocation under horticultural crops has often been suggested as a measure for agricultural diversification, increased employment and income (Malik, 1998).

Various agricultural scientists and economists have dealt with the differences in results from region to region. The horticulture products are complex in marketing system because of their variety, perishability and grading for quality...However, a more efficient system can result through effective co-operation among the producers, traders and consumers (Rajagopal, 1995).

Shrijay Devaraj (1996) stated that market development involves several constraints. They vary from region to region and prevail in different degrees of evolving on organisation capable of linking the rural production centres to consumption centres.

Acharya (2006) stated that the farmers will benefit from deregulation of markets; minimum guaranteed price scheme, contract farming only to the extent they organise in marketing groups, self-help groups, co-operatives or companies and learn skills suited to the new marketing environment. Understanding quality standards, learning the terms of contract and insurance, and preparing the produce for the market are going to be essential

skills for farmers. State marketing departments, APMCs, marketing co-operatives, NGOs and PRIs should pay increasing attention to capacity building and organising farmers for marketing in the new environment.

Indrasena Reddy (1995) observes that in the condition of agriculture and vegetable marketing, the pricing system should ensure fair return to all parties involved in the marketing process. It should provide an adequate incentive for further production. But in India, due to the unorganised nature of agriculture markets, the pricing system is often biased and exploitative. On account of many factors, agriculture markets did not encourage competitive prices to the farmers to guide their production programmes.

Proper marketing of the farmer's produce ensures fair prices for his produce. This, in turn, encourages him to produce more for the market. The wants of the urban sector are better satisfied and the process of industrialisation gets a boost. As a result, the income of the farmer increases and results in increased demand for industrial products. Therefore, there is need for a proper marketing system for speedy economic development of the country (Rahman and Sharma, 1997).

Raju and Rao, (1995) study found that regulated markets at Guntur and Duggirala of Andhra Pradesh had done a commendable work in terms of attracting more quantity of cultivators to produce chillies and turmeric. At Guntur market yard, the operation of commission agents should be completely removed and open auction system implemented. The price had shown very wide fluctuations both within the season and cyclically over the years. The Government or marketing committee should fix and announce minimum support price for chillies and turmeric. The committee should strictly enforce buying and selling of all notified commodities within the market. Growers should be made aware of the facilities that the committee is providing to them.

Sanjeeva Rao (1995) conducted a study on paddy marketing system in Godavari district of Andhra Pradesh. This district is characterised by the predominance of village sales and the absence of regulated markets. The commission agent who happens to be the village broker is playing a crucial role in marketing of the paddy. As there is no regulated

market and because of lack of competition among buyers, commission agents of rice mills pay lower price during harvest time and sell with more profit during lean season; even when lower levy price is taken into consideration, the spread between the wholesaler's price of rice and the price paid to the producer for paddy reflects the dominance of the millers in the rice market.

Panda (2005) asserts that the rural markets suffer from the problems of inadequacy and neglect. There are not many distribution outlets, warehouses, stockists to store and distribute rural products. Similarly, poor infrastructure, transportation system and infrequent flow of goods and services into the rural areas serve as a deterrent to the growth of the Indian rural markets.

Kathirvel (2007) has estimated the cost and returns of banana cultivation especially in Karur district of Tamil Nadu. He has concluded that the Government can pay attention by providing transport facilities, maintaining good roads and providing subsidies for fertilizers so that the small and medium farmers might be benefited.

Ghayur Alam and Deepti Verma (2013) show that farmer's ability to form farmers groups can be an important attraction for a company considering building direct links with small farmers. This can significantly reduce the cost of linking them with dynamic markets. The study suggests that 'storing farmers' organisation can take control of the supply chain in due time giving farmers a greater say in the formatting of the chain. The farmers belonging to the supply chain have received a number of benefits. These include higher profits, technical support and increased land use. The household income of farmers belonging to the chain has shown a significant increase during the last six years.

Vijay Paul Sharma (2013) has noted that in excluding small and marginal farmers contract companies have a preference for medium and large farmers, in order to reduce their transaction costs and ensure quality standards. Success of contract farming will largely depend in integrating small and marginal farmers in the contract farming system. The study found that companies provide only seeds, and sometimes extension services. None supplies other inputs such as pesticides, fertilizers and credit.

Satyanarayan (1995) stated that the farmers were unable to raise their voice against any type of exploitation. They were unorganised and less receptive to the changes in the system. Trading committees exploit the farmers because of the weakness among latter who could be influenced by money lent by the traders at very high rates of interest.

#### **1.4. Objectives of the Study**

The main objectives of the research study are:

- To estimate the share of the farmer in the consumer rupee in emerging marketing channels vis-à-vis the traditional marketing channels in Tamil Nadu.
- To estimate the degree of market efficacy and incidence of post- harvest losses in emerging and trading marketing channels in Tamil Nadu.
- To study the superior market practices and services provided by different agencies in the emerging and traditional marketing channels in Tamil Nadu.
- To study the constraints faced by the farmers and the different market-functionaries in the emerging and traditional market channels in Tamil Nadu.

#### **1.5. Methodology of the Study**

The research study utilizes the primary as well as secondary data. It is expected that the study, once accomplished, will be useful to assess the efficacy of the emerging marketing channels vis-a-vis traditional marketing channels in Tamil Nadu.

##### **1.5.1. Primary Survey**

A sample method is adopted from the co-coordinating centre, according to research design adopted from the centre. Tamil Nadu is one of the centres to which the study is confined. The selection of crops, districts, blocks, villages and farmers has been made based on the guidance given by the coordinating centre. Two horticulture crops namely, banana as a fruit crop and potato as a vegetable crop, have been selected proportionately for the research study on the basis of the existing marketing channels such as Traditional Marketing Channels (TMC) and Emerging Marketing Channels (EMC) in Tamil Nadu.

According to the methodology guidance, we have chosen two districts Trichirapalli and The Nilgirs dominated by horticultural crops namely banana and potato, respectively. Two blocks were selected purposively from each district. Two block-wise villages and farmers were selected from the districts, with the agricultural officers' consultation, by taking into account the predominance of the two crops under reference. From each block, two villages were selected purposively and thus covering from each district. In addition to that, lists of farmers' household marketing, and their produce through TMC and EMC were prepared according to the size of the farmers classified under four groups from the selected village of each block. Again, 25 farmers adopting TMC and another 15 farmers adopting EMC were selected randomly from the two villages of each block by following the ratio proportionate techniques against the four groups. Finally, 25 sample-farmers from each block were drawn resulting into a total of 100 sample farm households in Tamil Nadu.

The data has been collected from the following respondents by using specially designed interview schedules supplied by the Ministry of Agriculture for the research study for farmers, buyers, retailers, consumers and market committee members. The sample size for the study is as presented in the Table 1.1.

Table 1.1 Respondent-wise Sample sizes for the Primary Survey

Sample Respondents	Banana Crop		Potato Crop	
	TMC	EMC	TMC	EMC
Farmers	50	15	50	15
Buyers	5	5	5	5
Retailers	5	5	5	5
Consumers	5	5	5	5
Total	65	30	65	30

Source: Field Survey Data Note: TMC refer Traditional Marketing Channels and EMC refer Emerging Marketing Channels

Table 1.1 presents sample size of Trichirapalli and The Nilgirs districts of Tamil Nadu for selection of buyers and retailers for both the crops dealing in TMC and EMC, respectively. We have considered the main markets within the sample districts such as Trichirapalli market for banana crop and Nilgiris uzhar sandhai for potato crop. From

each market, 5 buyers and 5 retailers were chosen randomly in order to interview for the research study. In EMC for banana crop, 5 buyers per district were selected for interview from the sample districts of Trichirapalli and The Nilgiris for potato. But from Uzhavar Sandhai, only one buyer was interviewed from the sample district of Nilgiris for the study. Besides the producer, sellers information was collected from five consumers of bananas from Trichirapalli district and five consumers of potato from Nilgiris district. A focused group discussion with the members (15 Nos) of the market committee was also conducted in order to get a clear picture of market charges, market practices and market infrastructure. The primary data were collected in respective districts of Tamil Nadu during 2012.

### **1.5.2 Secondary Data Sources**

The secondary data were collected from various Government publications including National Informatics Centre, Department of Economics and Statistics, Government of Tamil Nadu, State Planning Commission, Tamil Nadu and District Income Statistics of Trichy and Nilgiris. The state marketing Act, Bye-laws and Regulations of State Marketing Board were accessed. The research study is covered simple percentage, benefit-cost ratio.

### **1.6. Limitation of the Study**

The present study has been conducted by selecting banana and potato crops only from two blocks of two districts of Trichirapalli and Nilgiris in the state of Tamil Nadu so far as the production and marketing of banana and potato are concerned. The data collected from the selected sample households were based on the reports of the respondents.

## **1.7. Organization of the Research Report**

The research study is divided into five chapters. The first chapter is introductory in nature. The second chapter focuses on the background of the agricultural market reforms and similarity and differences of the features of the traditional and emerging marketing channels in Tamil Nadu. The third chapter presents detailed information on socio-economic profile of the study area. The fourth chapter contains a comparison of the benefits and constraints for the agents trading in the traditional and emerging marketing channels. The fifth chapter contains the summary, conclusions and policy implications of the study.

## **Chapter II**

### **Agricultural Marketing Reforms in India and Tamil Nadu**

#### **2. Introduction**

In India, the agricultural marketing system has undergone several changes over the past six decades. From the beginning, there has been some kind of government intervention in the system. The government policy interventions in agricultural marketing in India have witnessed several changes. The number of acts and regulations are implemented by the Union and the State governments from time to time. After independence, a numbers of acts have been implemented by the Government. The Acts like Essential Commodities Acts, Agricultural Produce Market Acts, Model Acts are implemented by both the Union and State governments. Especially, after the economic reforms period, a number of agricultural marketing reforms were initiated by the government for the betterment of the farmers and the consumers in India.

#### **2.1 Agricultural Marketing Scenario in India**

Agricultural marketing in India is inefficient and exploitative in nature. Different layers of intermediaries are involved in the activities of the agricultural marketing. They are creating lot of complexities in the system. The intermediaries share the marketed surplus of the farmers in different ways. The farmers get only small share of the price but the consumers pay a high price. The commissions are shared by the wholesaler and the agent in the field. To abolish the intermediaries in the farm field, the government has adopted direct purchase methods from the farmers. The main objective is to get a fair price to the farmers and to abolish commission agents. This trend is emerging in India. The benefits of direct purchase by the government mostly to foodgrains producers. A significant proportion of the marketed surplus is shared by the commission agents, who are the intermediaries between the purchaser and the wholesaler. As a result, the benefits of procurement prices increase constantly. But the economic condition of the poor farmers remain the same.

The income of farmers in the rural sector is highly volatile depending upon the price level. The produce is purchased from the producers and the small and marginal farmers who lack storage facilities immediately after harvest, when there is a post-harvest slump in prices. In the farm, the small and the marginal farmers generally do not have godown facilities. But rich farmers have storage facilities. They can store the produce and release it during the lean season, when the prices are much higher. As a result, the consumers pay higher prices, increasing unwanted margins of the middlemen and the traders. This also prevents the stability of the agricultural prices and frequent fluctuations in the prices of agriculture produce, affect the general price level. The general price level mainly depends upon agricultural prices in the Indian economy.

A serious constraint in the agricultural markets is transportation facilities from one area to another for the arrival of the agricultural produce in India. A majority of the villages in India is poorly connected by road to reach the nearest market Therefore the farmers voluntarily dispose their agriculture produce at the lowest price within the villages due to the inaccessibility of the roads and lack of godown facilities. Otherwise, farmers have to spend sizable amounts on transport. During the monsoon season, the villages are affected by poor road facilities.

An improvement in the economic condition of the farmers demands a smooth flow of their produce to the market in adequate quantity at the correct time. The majority of the operational landholdings are occupied by the small and the marginal farmers in India. The fragmentation of landholdings and the size of small holdings are not only affecting productivity, but also make the proper estimation of the arrivals of agricultural produce in the market, unpredictable. The rich farmers are having the ability to hold their produce and release them to supply during the lean season. They have the capacity to wait for a better price at a favourable time. This problem is helpful to the middlemen and the traders who exploit the poor farmers who will sell their agricultural produce at a lower price due to the compulsion caused by their monetary need; there is no other alternative for them, because of transport constraints in their village.

## **2.2 Agriculture Marketing Trends since World War II**

The Government started to control agricultural marketing, especially marketing of foodgrains in India since 1939 during the Second World War. A committee was set up by the government to explore the reasons for Bengal famine in 1943. The committee concluded that the famine was due to the failure of the foodgrains distribution system and not due to the shortage of foodgrains in the country. Since foodgrain markets failed to prevent the famine across the country, to correct this market failure, the government became involved in the marketing of foodgrains to feed the needy people of the country.

The Department of Food under the Ministry of Agriculture was assigned to manage the food economy in the country. Rationing and controls on the inter-state movement of foodgrains were also introduced. The rise in the demand for foodgrains caused by population growth and rising incomes was a challenge in 1957. The Government set up a committee to analyze the food situation and suggest new foodgrain policies.

The main objective of the government was to facilitate the smooth functioning of markets and to keep a check on activities that were considered inimical to the producers and the consumers till the mid-1960s. The country opted for a package of direct and indirect interventions in agricultural markets. Prices initially targeted at procuring and distributing wheat and paddy. This gradually expanded to cover several other crops/products and aspects of domestic trade in agriculture.

### **2.2.1 The Agricultural Produce (Grading and Marketing) Act, 1937**

Since the purpose of the Act was to encourage maintaining the quality of the products and promote the consumer confidence in agricultural products, this Act was called as Agricultural Produce Grading and Marketing Act which was passed in 1937. The main objective of this Act was to maintain the standard of quality and to prescribe grade specifications for a number of products. The Act authorised an agricultural marketing advisor in each state to grant a certificate of authorisation to persons or corporate bodies who agreed to grade agricultural produce as prescribed by it.

There are AGMARK grade specifications for 212 agricultural products, but the use and awareness of it have remained low despite a better understanding of quality attributes among the consumers.

As a step towards liberalisation of agricultural trade, the Union Government issued an order on 15 February 2002, removed the licensing requirements and all restrictions on buying, the stocking and transporting specified commodities including wheat, rice, oilseeds and sugar. They were further decontrolled after that. Similarly, the dairy sector was liberalised through various amendments to the milk and milk products order, beginning in 1992. The main purposes of these changes were to allow increased participation by the private sector in marketing agricultural commodities.

### **2.2.1 Essential Commodities Act, 1955**

The market functionaries are regulated by several other legal instruments, promulgated and revised from time to time by the Union and State Governments. The most important regulation was by the Essential Commodities Act passed in 1955. Almost all the agricultural commodities such as cereals, pulses, edible oilseeds, oilcakes, edible oils, raw cotton, jute and fertilisers are included in the list of essential commodities. The Act provides licences, permits, regulations and orders for price control, storage, stocking limits, movement of produce, distribution, disposal and sale, compulsory purchase by the governments. A large number of controls have been put into force by the central and the state governments under ECA.

The Government has removed many products including herbicides, fungicides and exercise books from the purview of the Act. The Union government had decided to bring onions and potatoes under the ECA. But, notification aspects had to clarify such as, executing authorities and stock limits. Both commodities were removed from the ambit of the Act through an order on November 25<sup>th</sup> 2004.

The Act empowers the central and the state governments to control the production, supply and distribution of certain commodities due to rising prices and to take measures including licensing, distribution and stock limits. The government can also

impose selling penalties for selling certain commodities above the prices fixed by the government. The Act also helps to deal with the black marketing.

### **2. 2. 2 Agricultural Produce Marketing Committee Act (APMC) Act**

After independence, the major concern of the government policy relating to agricultural marketing was to protect the interests of the farmers and to provide them remunerative prices to augment the production of agricultural commodities. Recognizing the problems like low price realization by the farmers, higher marketing costs and considerable post-harvest losses in agricultural produce in the entire value chain, the state governments, mostly during sixties and seventies introduced several mandatory regulations. One of the important regulatory initiatives was taken up for Regulation and Development of Agricultural Produce Markets by regulating the marketing practices in the primary wholesale markets. The strategy for development of agricultural marketing system centered on an Agricultural Produce Marketing Committee (APMC) constituted under the State Agricultural Produce Marketing Regulation Act (popularly known as APMC Act) with the agriculturists at the helm of affairs to facilitate efficient marketing of agricultural and allied commodities. The democratically constituted Market Committees with representation from all stakeholders and farmers in the driver's seat was conceived to be an ideal and cohesive model for the farmers and the other market participants to prosper. The regulatory provisions were to be enforced by Agricultural Produce Marketing Committee, established under the respective State APMC Acts. Except Union Territories of Andaman and Nicobar Islands, Dadra-Nagar-Haveli, Daman and Diu, Lakshadweep and States of Bihar, Kerala and Manipur, all the States and UTs have enacted Agricultural Produce Marketing (Regulation) Acts to enforce the orderly marketing of agricultural and allied commodities in their jurisdictions.

The Act has been provided in the provisions of more than 27 Regulated Market Acts in different states and union territories of the country. The main purpose of this Act is regulation of trade practices, increased market efficiency through reduction in market

charges, elimination of intermediaries and protecting the interest of the producer- sellers in the market. Some of the important features of the Act are given below:

State like Andhra Pradesh and Himachal Pradesh have included all the commodities in the schedule, but Punjab, Madhya Pradesh, Maharashtra, Rajasthan, Gujarat have included only specified commodities in the list. The whole responsibility for regulation of markets is vested within the market committee in all the state Acts. In the case of Tamil Nadu, only one market committee is constituted for all the regulated markets located in the districts. The number of members of the marketing committee ranged from 10 to 17 in different states.

The agricultural marketing board was established for execution of the market development work. The marketing board of Andhra Pradesh, Odisha and Tamil Nadu are advisory in nature. But in Punjab, Haryana, Rajasthan, West Bengal, Karnataka and Maharashtra boards are statutory in nature and they have a powerful role.

All the wholesale markets for agricultural produce in states have adopted the Agricultural Produce Market Regulation Act to regulate markets. Apart from Kerala, Jammu and Kashmir and Manipur, all other states in India have enacted marketing legislation. The Act mandates that the sale and the purchase of agricultural commodities notified under it are to be carried out in the specified market areas. These markets are required to have proper infrastructure for sale of farmers' produce. Prices are to be determined by open auction, conducted in a transparent manner. Market charges for various agencies such as commission, statutory charges (market fee and tax) and produce handling charges (cleaning of produce) and loading and unloading are defined by the board.

The purpose of this Act is to control malpractices and imperfections in the market. It ensures good deal to the farmers in selling their produce. The Act has created good environment that freed the producer-sellers from exploitation by the traders and the merchants. The marketing monopoly provided to the states by the Act is seen as preventing private investment in agriculture markets. The restrictive legal provisions of

the Act are that all agricultural produce brought into within a market area shall pass through the principal yard or sub-yard and shall not be bought or sold at any other place in the market area or no such person shall carry on business and trade in agricultural produce in the market area except the one who holds the licence issued by the market committee.

### **2.3 National Agricultural Policy, 2000**

The policy was announced in July, 2000. The main objective is to create growth potential for Indian agriculture, strengthening rural infrastructure to support faster agriculture development, promote value addition and accelerate the growth of agribusiness. The main aims of agricultural reforms include a desirable change concerning the enlargement of the functioning of the market. The policy aims at doing away with several controls, besides progressively removing regulations, restrictions on the movement of agricultural commodities. Another important change concerns the provisions for the participation of the private sector in the agriculture sector in a big way. In the farming operations, the private sector is to be involved through contract farming. In the sphere of investment, the private sector will be encouraged to put in their resources in important research, skill formation, post-harvest management and marketing.

In dealing with these, the policy aims at finding solutions to their needs and problems, ranging from the beginning of their operations namely, production to the marketing of the produce. The aim is to make the sector efficient and viable. This includes availability of inputs, in particular credit, investment, technological up-gradation, improvement in management and marketing.

### **2.4 Marketing Reforms Initiatives**

The agricultural marketing reforms have been given top priority by the government during the last two decades. There is a need for reforms in agricultural marketing because of pervasive deregulations after 1990. It has unnecessarily increased marketing costs and risks and uncertainty. The excessive marketing margins have placed downward pressure on farm prices, increased the cost to the consumers, reduced

competitiveness of exports and depressed demand of the local consumers. The indicators for guiding reforms in agriculture marketing should include a) improvement in marketing efficiency by reducing costs of marketing b) better returns to farmers for their produce c) reducing the farmers marketing risks d) availability of quality products to the consumers at reasonable prices e) improvement in physical and economic access of masses to food and nutrition and f) creation of additional employment in agricultural marketing.

Several committees and expert groups were commissioned by the Government of India to suggest the direction of reforms in the field of agricultural marketing in India. In December 2000, the Union Ministry of Agriculture constituted an expert committee to find out the means for strengthening and developing agricultural marketing system. This committee reviewed the entire system of marketing and submitted its recommendations to the Government of India in June 2001. The expert committee's recommendations included various legislative reforms and reorientation of the policies and programmes.

The Government of India constituted an Inter-Ministerial Task Force in July 2001 to suggest measures for the implementation of the recommendations of the expert committee. The task force interacted with various stakeholders and identified nine priority areas, and each of these priority areas was assigned to separate inter-ministerial working groups to work out a road map for reforms and development of these areas. Based upon the inputs received from the working groups, the task force submitted its report in May 2002. It suggested the required direction of change in policies and programmes.

The committee's recommendation was that the agricultural marketing system should be made more vibrant and competitive. It also recommended amendment of the state APMC Act for the promotion of direct marketing and contract farming, private and co-operative sectors, the introduction of negotiable warehouse receipt system and use of IT to provide market-led extension services to the farmers. As a followup measure, the union government, in order to guide the states in the implementation of the suggested reforms, drafted a Model Act on Agricultural Marketing. It also emphasized the need for

the establishment of direct purchase centres and farmers markets for direct sale to consumers, complete transparency in the pricing system and payment to the farmers on the same day.

The APMC Act mandates all farm products should be brought to mandis for auctioning, making these platforms virtual monopolies. The farmer pays to transport his produce over long distance, before knowing the price at which his produce would be sold and also whether any other market had paid a better price. The journey from the farm to the consumer involves multiple levels of transportation, handling expenses, commissions of agents, and a mandi cess, adding nearly 20 percent cost of food prices. This absurdity was acknowledged years ago, and a new Model APMC Act was recommended by the Centre in 2003.

The Model Act must be implemented in all states. Unless the farmers have the freedom to sell at farm- gate or other transparent platforms directly to the buyers, transaction costs will remain high and drive consumer prices higher. There is also the need to cut wastage. Anywhere from 5 percent to 40 percent of food is wasted along the chain, depending on the perishability of the crop and the season. First, market instruments must empower the farmers to produce as per tomorrow's demand, rather than be guided by yesterday's prices.

#### **2.4.1 Model Act Rules**

The Ministry of Agriculture in consultation with the stakeholders framed Model Rules and circulated the same to all the states for their guidance during 2007. Only Andhra Pradesh, Rajasthan, Maharashtra, Odisha, Himachala Pradesh, Karnataka, Mizoram, Madhya Pradesh and Haryana had notified such amended rules.

#### **Features**

1. The main objective of this Act is providing for the development of efficient marketing system, promotion of agricultural processing and agricultural exports.

2. Legal persons, growers and local authorities are permitted to apply for the new markets for the agricultural produce in any area.
3. There will be no compulsion on the growers to sell their produce through the existing markets administered by APMC.
4. Ensuring transparency in pricing system and transaction taking place in a market area.
5. Providing market-led extension services to farmers.
6. Ensuring payment for the agricultural produce sold by the farmers on the same day.
7. Set up and promote public-private partnership in the management of agricultural markets.
8. A new farming system is contract farming. It insists on compulsory registration of all contract farming sponsors, regarding agreements, resolution of disputes (if any)
9. Provision made for direct sale of the produce to the contract farming sponsor from the farmers.
10. Provision made for imposition of single-point levy of market fee on the sale of notified agricultural commodities in any market area.
11. Commission agency in any transaction relating to notified agricultural produce involving the agriculturist is prohibited. There will be no deduction towards commission from the sale proceeds payable to the agriculturist seller.
12. Provision made for the establishment of the farmers market to facilitate direct sale of the agricultural produce to the consumers.
13. Provision made for the purchase of the agricultural produce through private yards (or) directly from the farmers in one (or) more than one market area.

While the expert committee and the task force were on the job, the Union Government launched two other comprehensive studies. One of these was the millennium study of the Indian farmers launched by the Ministry of Agriculture. In this study,

agricultural marketing was an explicit component. This study aimed at the review of agricultural marketing scenario in the country and changes therein during the last fifty years. The draft of this study report was ready in early 2002. The main findings were made available to the expert committee and the task force. However, the report came out only in 2004. The other comprehensive review launched by the Government was the commissioning of a high level committee on long term grain policy by the Union Ministry of Consumers Affairs, Food and Public Distribution (Abhijit Sen). This committee submitted its report in July 2002.

## **2.4.2 Review of Implementation of Market Reforms**

### **1. Adoption of provision related to Private Market**

The Act provided private market yards for persons other than APMC. Among the 35 states, Andhra Pradesh, Assam, Gujarat, Goa, Himachala Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Mizoram, Nagaland, Odhisha, Rajasthan, Sikkim, Tripura, Jharkhand and Uttarakhand have the provision for private market yards. But rules and bye-laws have not been formulated by all them and only the states like Maharashtra, Karnataka, Gujarat and Tamil Nadu have issued licences to the private markets.

### **2. Provision for Direct Market**

This Act also provided for granting licences to the exporters, the graders and the packers for purchase of agricultural produce directly from the farmers. States such as Andhra Pradesh, Assam, Gujarat, Goa, Himachala Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Mizoram, Nagaland, Odisha, Rajasthan, Sikkim and Tripura have made this provision. This Act provides direct link between the farmers and the consumers. The growers of fruits and vegetables will get more benefits due to prices which are more than that of the wholesale market and lower than the retail prices (Reddy, Meena, 1998).

### **3. Provisions for Contract Farming**

This Act provides for permitting contract by using registration of contract with the APMC. They are allowing purchasing of contracted produce directly from the farmers outside the market yards with exemption of market fee on such purchase. The States

above mentioned have incorporated these provisions except exemption of market fee. This kind of farming is an important provision in the Model Act. The provision is, indeed, a vehicle for the modernization of agriculture. The farmers get timely supply of inputs, credit and farm machinery. The price problem is also solved by the government.

#### **4. Establishment of Farmers Markets**

The main objective is providing chance to the farmers to sell their produce direct to the consumers, and market fee is not levied on the farmers, though some service charge may be imposed. States like Punjab, Haryana, (Apni Mandi), Rajasthan, (Kisan Mandi), Andhra Pradesh (Rzythu Bazaar), Tamil Nadu (Uzhavar santhai), Maharashtra (Shetkari bazaar) and Odhisha (Ksushak bazaar) have promoted this market. This market links between the farmers and the consumers directly and helps the consumers to resort to a direct business transaction. This brings more benefits to both the parties. Hence, nearly 17 states have made provision for this highly beneficial act.

#### **Commission Agents**

The APMC Act has to prescribe the rate of commission and also to specify whether it should be collected from the buyer or the seller or from the both. It may be noted that the first Model Act, 1960 desired that the farmer (or) the seller should not be required to pay any charge including commission. Madhya Pradesh had abolished the commission agents system related to the agricultural produce. But commission is payable by the sellers in Andhra Pradesh, Tamil Nadu, and New Delhi and the remaining other states demand the commission from the buyers. The commission charges show variation from 1 to 3 percent for foodgrains and 4 to 8 percent for fruits and vegetables. The Model Act 2003 prohibits the participation of commission agents in any transaction of agricultural produce of the farmers.

#### **2.4.3 Agricultural Marketing Committee Report (2008)**

The Ministry of Agriculture, Government of India had organised the Conference of State Ministers of Agriculture on 23<sup>rd</sup> April 2008. A committee was constituted for agricultural marketing to guide the implementation of agricultural marketing reforms. The

interim report of the committee was submitted to government on 8<sup>th</sup> September 2011. The major recommendations of the committee are given below:

1. The states are required to amend the APMC Act on the lines of the Model Act and the reforming states may notify them at any early date.
2. There is the need for independent regulator for market operations for which the post of the Director of marketing is a necessity.
3. All states have the need to decide regarding the compulsory requirement of shop for registration of traders/market functionaries for increasing competition.
4. The committee recommended providing exemption to direct marketeer, contract farming sponsor and godown owner to the limit of their capacity of utilization.
5. Member state may maintain a separate account of market fee from purchase/sale of perishable horticultural produce.
6. They recommended that marketing infrastructure under RKVY be increased to 10-15 percent of state RKVY spending in the concerned states.
7. Market fee/fees including rural development fund and purchase tax should be maximum 2 percent of the value and commission charges should not be more than 2 percent for foodgrains/oilseeds and 4 percent for fruits and vegetables.
8. Direct level authority may be set up for registration of contract farming and no market fee should be levied. The APMC should not be responsible for registration/dispute settlement.
9. The disputes may be settled within five days and the decretal amount of appeal should not be more than 10 percent of amount of goods purchased.
10. The member states agreed to pay market fee/ cess. It is levied at first transaction only between farmer and trader and in subsequent trading between traders to trader.

#### **2.4.4 The Agricultural Reforms Committee Recommendation (2013)**

The Agricultural Reforms Committee (2013) has as its main objective barrier-free national market for the welfare of the farmers and the consumers. The committee noted

that APMC has emerged as monopoly in the agricultural supply marketing in India. The monopoly system is a setback to the agricultural marketing system. Marketing committee members have chance of misusing their power in the market and it will lead to monopoly conditions. Even today, APMC could not achieve the basic objective of the welfare of the farmers and the consumers. At present, only Punjab (Apri Mandi), Tamil Nadu (Uzhavar Sandhai), Maharashtra (Shetkari Bazaar) Andhra Pradesh (Rythu Bazaar), Odisha (Krushak Bazaar), and Rajasthan (Kisan Mandi) are successfully functioning in direct marketing of agricultural produce in India.

Some measures of barrier free national market are given below:

1. Commodities such as fruits and vegetables, milk and fish are permitted sale/purchase in the market.
2. The market fee for fruits and vegetables and the commission charges for the agricultural or the horticultural produce is reduced.
3. More initiative to be taken for direct marketing in all states; APMC should encourage infrastructure facilities to the farm markets. SHGS/FPO is to organise farmers in the markets in urban centres.
4. Corporate/companies as a measure of corporate social responsibility should take initiative for agricultural allied activities like food processing. They must also help set up supply chain infrastructure.

## **2.5 Commodity Futures Market**

The main objective is to improve domestic market efficiency and this facilitates the price formation process in commodities. The Forward Markets Commission is one of the regulators for the commodity futures market. It is under the control of the Ministry of Finance from September 2013. At present, 46 commodities are notified for future trading activity. The agricultural commodities accounts for 16 percent of the total revenue of futures market in 2013-14. Some of the food items like soya oil, soyabean, channa, and rapeseed / mustard seed shared 55.56 percent and non-food items like castor seed and cotton shared 17.46 percent. Information is very essential for the farmers for selling their

produce in the market. FMC is implementing the Price Dissemination Scheme. This scheme is meant to provide information relating to spot prices got from the National Exchanges and the spot prices of AGMARKNET from around 1700 mandis and 267 APMC and KVKs.

## **2.6 Recent Developments**

The Economic Survey (2013-14) proposed that the Union Government should take steps to set up a National Commission for Agricultural Market. The main objective is to remove restrictions and bottlenecks for better free trade. The removal of market restrictions will create better competition and promote efficiency in the market. Second, government should take steps to abolish market fee outside mandi and mandi yard.

The Union Government has the power to change the farm produce sold in the states. The states have created trade barriers. State APMC laws are a major hurdle to modernisation of the food economy. They have artificially created cartels of buyers who possess market power. The Parliament has power to legislate a national market. This will give the ability to legislate the freedom to buy and sell from the farmers and the traders across the states.

1. The corporate involvement is very essential for facilitating farmer-markets and setting up supply chain and create infrastructure facilities.
2. There is need for marketing reforms and privatisation in agriculture and food sector in India.
3. The Survey proposed to the government that it should create alternative market initiatives like direct farming and contract farming.
4. The Survey also proposed to the system of APMC, that the farmers sell their agricultural produce only at mandi as essential.
5. The Union Government will work directly with the state governments to amend their respective APMC Acts. This is essential for alternative private market yards. The state governments will support the private sector for the development of new market network in agricultural marketing.

### **2.6.1 Status of Agricultural Marketing in Tamil Nadu**

In Tamil Nadu, agricultural marketing generally speaking, is not well organized in nature. The farmers lack appropriate training in post-harvest handling and because of this, a significant percentage of the produce is lost. The estimated losses in the marketing chain are around 10 percent for foodgrains and 30 percent for fruits and vegetables. About 10 percent of the foodgrains are traded in the regulated markets. The remaining 90 percent of the items are sold in the unregulated markets. The national and state co-operative marketing federations are involved in processing, storage, export and price stabilization activities. Agricultural markets in fruits and vegetables are organized in different states to eliminate intermediaries and the majority of the state level institutions do not support the farmers to sell their agricultural produce at grassroots level. In Tamil Nadu, about 65 percent of rice, 70 percent of groundnut and gingerly and 92 percent of maize are handled by the village traders. The commission agents are involved in vegetable transaction to the extent of 85 percent and banana of 100 percent. This indicates the dominance of unorganized and non-formal channels in marketing.

### **2.6.2 The Potential of Agricultural Marketing System in Tamil Nadu**

Tamil Nadu, the second most industrialized state, is having great potential to develop a vibrant agrarian economy through agro-industrialization. The state exports commodities like tea, sugarcane, cotton, tobacco, groundnut and banana. It has potential to produce the agricultural products in certain geographical areas within the districts. It also has a great potential in agro-climatic zones, trained manpower availability, investment trust and government support. It is endowed with abundant natural resources like fertile land, good irrigation system, varied soil and climatic conditions, good support in terms of industries and technical knowledge. This kind of position is creating a lot of opportunity to develop the agrarian sector. The state witnessed a moderate agricultural growth in 2010-2011. The average growth rate was 12 percent. The development of agriculture related infrastructure like storage facilities, transportation to rural areas, mechanization and

grading standards, export promotion, processing industry support and market-intelligence are needed for effective utilization of agricultural marketing system.

Agricultural marketing plays a very important role in the farmer's life and without marketing; we could not sell the produce. Therefore, there is need for efficient and well organized marketing system to ensure fair price for the farmers and the consumers. It will reduce the middlemen, the commission agents and traders' exploitation in the market. In order to solve this problem in Tamil Nadu, the Royal Commission was established in 1928 for the welfare of the farmers to protect them from the traders' exploitation. In addition to this, it will help to give better prices, create selling facilities and also the basic amenities to the farmers. The Commission gave its recommendations to the Government of Madras. The government enacted the Madras Commercial Crops Market Act in 1933. This Act is a landmark in the system of agricultural marketing in Tamil Nadu. This Act was modified into Madras Agricultural Produce Market Act in 1959. This Act was for the formation of the market committee in every district of Tamil Nadu. It was meant to help in the process namely, buying and selling the agricultural produce. Subsequently, the 1959 Act was revised as, "The Tamil Nadu Agricultural Marketing (Regulation) Act 1987. This came into effect from 1991. At present, there are 17 Market Committees with 272 regulated markets covering the entire State except Chennai and Nilgiris districts.

The marketing policy for agriculture has considerably enhanced after the economic reforms in 1991. The objective of the reforms is improvement of the agriculture marketing sector. A large quantity of the agricultural produce is not recognized by the domestic markets as well as world market; it is because of lower quality of the agricultural produce of the farmers in India. The agricultural produce of our country find it rather difficult to compete in the international market due to globalization of the economic system. Therefore, there is need for the intervention of the government to solve this problem.

The Government of Tamil Nadu has taken many measures for the development of agricultural marketing. The institutions like Tamil Nadu State Agricultural Marketing

Board, Regulated Markets and Farmers Markets play very vital role in the agricultural marketing system.

### **2.6.3 Tamil Nadu Agricultural Produce Marketing (Development and Regulation) Act 2011**

The Directorate of marketing, market committees (21) and regulated markets (277) are under the control and management of Tamil Nadu Agricultural Produce Marketing (Regulation) Act 1987 and Rules 1991. About 40 agricultural commodities are identified under Tamil Nadu Agricultural Produce Marketing (Regulation) Act 1987. Fruits and vegetables, cattle, poultry, sheep, pisciculture and apiculture products are important commodities.

Later on, amendments were made by the Government of India for the Model Act 2003 and the Model rules in 2007. They are as follows;

- Establishment of private markets/ yards, direct purchase centres, consumer/ farmers markets for direct sale and promotion of public-private partnership in the management and development of agricultural markets.
- Separate constitution for special markets for commodities like onions, fruits, vegetables and flowers.
- A separate chapter should be included in the legislation to regulate and promote contract-farming arrangements in the country.
- Prohibition of commission agency in any transaction of the agricultural commodities with the producers.
- Redefining the role of State Agricultural Marketing Boards to promote standardization, grading, quality certification, market-led extension and training of farmers and market functionaries in the marketing related areas.

- Facilitating e-trading, direct purchasing, export, forward/future trading and introduction of negotiable warehousing receipt system in respect of the agricultural commodities.

#### **2.6.4 Uzhavar Sandhaigal (Farmers' Markets)**

The Government of Tamil Nadu introduced the farmer's markets (uzhavar sandhaigal) in Madurai in 1999 for the welfare of the farmers and the consumers. The objective of these markets was to encourage direct selling of the agricultural commodities like fruits and vegetables at a reasonable price by the farmers to the consumers without any middleman's involvement. This market has reduced the gap between the farmers and the consumers. It is running under market committee. At present, there are 179 farmers markets in Tamil Nadu. In order to promote direct marketing facilities, the *Uzhavar Sandhaigal* have been set up in the urban areas in Tamil Nadu for the benefit of the farmers as well as the consumers. Farmers get higher price which is 10-15 percent more than the prevailing wholesale market price and the consumers also benefit by paying 5-10 percent less than the prevailing retail price due to the absence of the middlemen. This market is very successfully going on now for the benefit of the common man. This market is very much interested in reducing inflation and safeguarding the interests of farmers as well as people as buyers.

#### **2.6.5. Regulated Markets**

The regulated markets act as a common forum for the farmers and the traders to meet and sell their goods at reasonable prices. The main objective is to abolish the intermediaries in the market. There are 277 regulated markets, 164 rural godowns and 188 godowns are functioning under 21 Market committees in Tamil Nadu. In addition to that, there are 288 transaction sheds, 353 drying yards, 89 farmers' rest houses, 183 sanitary facilities, 10 Rural Business Hubs (RBHs) and 189 market information facilities in regulated markets. During the Eleventh Five Year Plan period, around 17.50 L.MT/ per

annum agricultural commodities were transacted; about 4.37 lakh farmers were benefited by regulated market transactions.

The pledge loan system is one of the foremost systems for the welfare of the farmers during the transaction of agricultural procurement in the market. The farmers are safeguarded from suffering due to loss of agricultural produce during the harvest season and also from the lower price for their produce. Further, farmers are allowed to safeguard their produce in the godowns of the regulated market. It also helps the farmers in a keeping proportion of their produce as seed corn without wastage and in making preparations for next cropping season. The small and marginal farmers are availing of the schemes. The farmers are availing the loan amount of Rs. 2.0 lakh at 5 percent rate of interest and the repaying period is 6 months. The traders are also availing this loan with 50 percent value of their produce. They get maximum amount of Rs. 1.0 lakh with 9 percent rate of interest and repaying period is within three months.

### **2.6.5 Cooperative Marketing Societies (CMS)**

In Tamil Nadu, there are 110 marketing societies functioning for the welfare of the farmers. These societies are functioning with a tie up of the cooperative wholesale stores. The main functions of these societies are to procure the farmers' produce, process it and sell it to the cooperative wholesale stores. The main objective is to get an optimum price to the farmers and good quality produce to the consumers at a reasonable price.

The Department of Agricultural Marketing and Agri Business has taken rigorous steps in the formation of commodity groups and direct tie-up. Traders are made to obtain 15-20 percent higher income to the farmers. Agri-Business Centre (ABC) is focusing on market linkage/tie-up arrangement between the commodity group farmers and the traders/ firms/private entrepreneurs to realize better remuneration by the farmers. So far, 1657 commodity groups have been formed and 1179 were made between the farmers and the traders through 21 ABCs during the Eleventh Five Year Plan. Similarly, Rural Business

Hubs (RBH) created under NADP, envisaged expansion of opportunities to the farmers through increased access to markets through forward linkages.

### **2.6.6 Direct Channel: Farmers / Consumers**

There is the link between the farmers and the consumers through farmers' organization. The main objective is to reduce the transaction cost to the farmers. The creation of direct channel is for the farmers and consumers through contract farming. The large retail chains and agricultural export zones and specialized markets like mega market, terminal markets and market complexes for agricultural commodities have been established.

### **2.7. Achievements during the Eleventh Five Year Plan**

The World Bank has assisted IAMWARM (Inter Agricultural Management for Water Resources Management) project for the successful growth and sale of the agricultural produce in Tamil Nadu. About 258 infrastructure projects, 19 agriculture business centres, 87 storage godowns, 138 drying yards and 13 collection centres and one pack house was created for the welfare of the farmers in Tamil Nadu. The major initiatives of the government are strengthening of the regulated markets, establishment of terminal markets, Uzhavar Sandhai and creation of integrated cold storage facilities and training the farmers in relation with post-harvest management to achieve through market funds.

National Agriculture Development Programme provides cold storage for vegetables and fruits at Mettupalaym, Kinathukadavu, Trichy, and The Nilgiris and grapes and for chillies at Cumbum and Sankarankoil respectively. Infrastructure facilities like own building construction, transaction sheds and trader shops were created in the selected regulated markets. A sum of Rs.15 crore is available for the development of agricultural markets under NADP. Under the National Mission on Food Processing scheme, an amount of Rs.20 crore is provided for the promotion of agro-processing industries during 2013-14.

Under IAMWARM scheme, Agri-business Centres (ABC) are constructed. It has created a link between the commodity group farmers and the traders/firms/private entrepreneurs for better price to the farmers. About 2106 commodity groups were created for the farmers and the traders during the Eleventh Five Year Plan period.

An Agri-Market Intelligence and Business Promotion Centre is being established at Trichy to empower the farmers on price forecasting, high price period, best price market, quality parameters, pre-and post-harvest technologies for different agricultural commodities and export opportunities. Crop and market advisory services will be rendered to the farmers through this centre.

The private investment is encouraged for the development of agricultural marketing in India as well as Tamil Nadu. The Modern Terminal Markets are established. These markets cover modernized grading and packing line, cold storage and ripening chamber; quality control laboratories and electronic auction centres will be developed. These markets were established at Perundurai (Erode district) with public-private partnership with Rs.120.63 crore. About 350 drying yards for preventing post-harvest losses (Rs.9.49 crore), 75 farmers markets for fruits and vegetables were established during that period.

Special market complex is created for mango, onion, grapes, tomato and coconut at a cost of Rs.8.0 crore. RBHs have created regulated markets at Cuddalore, Villupuram, Salem, Dharmapuri, Erode, Dindigul, Ramanathapuram, Tirunelveli, and Vellore regulated markets and in Coimbatore district under NADP with Rs. 1.50 crore. Flower auction centre at Kavalkinaru in Tirunelveli district at a cost of 1.63 crore was established.

About 104 godowns for regulated markets with Rs. 23 crore, 7 transaction sheds with Rs.1.89 crore and 17 auction sheds with Rs.4.12 crore were established for easy transaction in regulated markets. The cold storage for tomato produce at Maicheri in Salem district and for chillies at Paramakudi in Ramnad district was established. The cold

storage for vegetables at Chekkikulam in Perambalur district and market complex for coconut at Pethappampatti in Thiruppur district was created. The market complex with cold storage facilities for hilly vegetables was created at Karamadai regulated market in Coimbatore district. Banana ripening chambers were established in Trichy, Srivaikundam, Chinnamanoor and Mohanur. About 50 pack houses for washing and grading facilities for fruits and vegetables were started. An AEZ for cut flowers at Hosur in Krishnagiri district, for flowers at Udhagamandalam in the Nilgiris district, for mango at Nilakkottai in Dindigul district, cashew at Panruti in Cuddalore district were started.

### **2.7.1 Twelfth Five Year Plan (2012-2017) Proposal**

According to Vision Tamil Nadu 2023, the forward and backward integration of industry leads to efficient production and distribution of agricultural produce. The main objective of this plan is to help the farmers in marketing their agricultural produce at fair price. The second objective is to ensure remunerative income to the farmers by forming commodity groups. The third objective is to create a healthy competition to sell the farmers produce in various marketing avenues. Lastly, it is to make the farmers to participate in national/global markets through market intelligence.

The Plan document has outlined certain strategies for the development of agricultural marketing. The first one has an integrated approach needed to marketing of planting crops like banana, mango, tapioca, spices, and flowers crops. The produce should have grading, packaging, storing and marketing in the domestic and the international markets. The second objective is commercialization of agricultural products through market driven production. The third one is setting up of agriculture/ horticulture processing units by arranging backward and forward linkages. The fourth aim is minimizing post-harvest losses by creating market infrastructure, cold chain and scientific storage facilities. The fifth objective is encouraging the private sector to set up agro-processing industries and food parks for processing on a large scale with farmers' participation. Lastly, implementing Food Processing Mission with special emphasis on the formation of State and District

level Food Processing Mission and Initiating Food Processing Business Incubator facilities near production catchments.

The plan document has pointed out some thrust areas like the food processing units like fruits and vegetables, rice mill, flour mill, bakery unit, dairy products, milk products, animal feed, flakes and fast food and these will be given higher priority during the plan period. Farmers will avail the facilities for their produce. The second aim is to earn foreign exchange, two more AEZs are to be promoted with modern pack house and gamma irradiation. The third objective is to encourage private investment in the agricultural marketing. Specifically to create modern terminal markets at Navalur at Kanchipuram district and Perendurai, Erode district and at Mukkampatti and Thiruvathavur at Madurai district to serve local and export markets.

### **2.7.2 Schemes envisaged for the Twelfth Five Year Plan**

- Strengthening regulated markets by creating rural godowns, drying yards and transaction sheds and traders shops by spending Rs.159.00 crore.
- Creating 25 RBH s in production centres with Rs.5.0 crore.
- Upgrading the 1500 commodity groups and will form new 1000 commodity groups.
- Strengthening IT infrastructure for market information and post-harvest management in 100 regulated markets.
- Establishing food courts for farmers in 50 regulated markets.
- Creation of 20 agro-processing industries with farmer's participation. The units are proposed for tomato in Krishnagiri, Salem and Coimbatore districts, for the banana in Trichy, Erode and Thoothukudi districts, groundnut in Vellore and Thiruvannamalai districts, pulses in Cuddalore, Vellore and Thiruvannamalai districts, coconut copra in Kanyakumari and Thiruppur districts, chillies in

Ramanathapuram and Virudhunagar districts, tamarind in Krishnagiri and Dindugal districts and for Tapioca in Namakkal and Dharmapuri districts.

- Creation of 4 mega markets with Rs.300.0 crore
- Establishment of 8 specialized market complexes with Rs. 80.00 crore.
- Creation of cold storages with 100, 1000 and 2000 MT capacity in 75 places to minimize the post-harvest losses with Rs. 240.00 crore.
- Cold storage market complex for fruits and vegetables at Mettupalayam, Kinathukadavu and Sankarankoil and Theni will be created in regulated markets and cold storage market complexes.
- Nearly 51 cold storage godowns will be constructed at regulated markets in the districts of Thiruvannamalai, Cuddalore, Erode, Vellore, Trichy, Coimbatore, Villupuram, Dharmapuri, Ramanathapuram, Salem, Dindugul, Kanyakumari, Thanjavur, Theni, Madurai, Tirunelveli and Pudukkottai for reducing the post-harvest losses.
- Starting the agro information cell at PACCS level and district level in Tamil Nadu.
- Setting up of food processing business incubator in Dindigul, Tirunelveli, Krishnagiri, and Dharmapuri districts.
- Setting up of testing laboratories in Dindugul, Tirunelveli, Krishnagiri and Dharmapuri districts.
- Setting up of cold storage unit in Ulundurpet, and Gingee, Villupuram regulated markets district will be provided with solar photo voltaic power generation system.

Potato and banana cultivators have mostly used the co-operative society. The Nilgiris district farmers have used the NCMS and Tiruchy District farmers have used the Kattuputhur Banana crop cooperative society.

## **Chapter III**

### **Profile of the Study Areas in Tamil Nadu**

In this chapter, a profile of the study areas including socio-economic conditions of the sample households from the districts of Trichirapalli and Nilgiris of Tamil Nadu has been given. Operational holdings, land use pattern, source of irrigation, cropping pattern, infrastructure facilities, income conditions, and importance of the crops under the study, and Traditional Marketing Channel (TMC) and Emerging Marketing Channel (EMC) are discussed.

The socio-economic conditions play a crucial role in determining the agricultural development. The socio-economic profile of the sample farmers in the study area covers mainly household's characteristics, head of the family, educational status, transport and storage facilities, religion and caste.

#### **3. Tamil Nadu's Economy**

Tamil Nadu is one of the pioneering states in all aspects of socio-political, economic and human development in India and it is a highly industrialized state. It shows rich cultural tradition and a legacy of ancient tradition and rich cultural heritage. There is variety and diversity in its geographical and climate conditions; it has been traditional divided into five zones, namely mountains, forests, arid zone, fertile land and coastal area. It lies between 8.5 and 13.35 at northern latitude and 76.15 and 80.20 of eastern longitude with an area of 1, 30,069 sq. km. According to the Census of India (2011), the state's population was 7.21 crore, constituting 15.96 percent of total population in India. The male and female population accounted for 50.09 percent and 49.91 percent respectively and rural and urban population trend 52 percent and 48 percent respectively. Literacy rate of Tamil Nadu is to 80.09 percent and this rate is better than All India rate of 74.04 percent.

It is the second largest state in economic activity after Maharashtra. The state has high per capita income and standard of living has been increasing. It is a state with financial soundness; INR Rs. 536.54 crore of revenue surpluses was recorded for 2011-12 and INR Rs. 2,376.07 crore of revenue surpluses is likely to be recorded during 2012-13.

The state is the fifth largest contributor to India's GDP and the most urbanized state in India. According to the Economic Survey of India (2013), the total cultivated area was 5.60 million tonnes in 2009-10. Fruits and vegetables account for 10 percent and 6 percent, respectively of agricultural production in India. Bananas and mangoes account for 87 percent of the total fruit production. The state is the largest producer of bananas and flowers, tapioca and second largest producer of mangoes, rubber, groundnuts and coconuts. It is also one of the leading states in livestock, poultry and fisheries production. The state has huge level of natural resources, suitable climatic conditions for cultivation of crops.

The percentage share of agricultural sector in GSDP ratio declined to 12 percent during 2005-10 against 25 percent during 1990-95. During 2011-12, the state registered the lowest share of 8.3 percent of agriculture-GSDP ratio, which is less than that of Punjab (24 percent), Uttar Pradesh (23 percent), and Assam (22.8 percent), Rajasthan and Madhya Pradesh (22.7 percent) and national average (14.5 percent). Its growth rate of GSDP (7.8 percent) was well above all-India growth rate of GDP (7.6 percent); agriculture-GSDP ratio (2.3 percent) was below the all-India growth rate of 3.2 percent (Economic Survey, 2013).

The agricultural performance in Tamil Nadu was poor during the Eleventh Five Year Plan period; the growth rate was 2.2 percent but the target was 4 percent. Tamil Nadu is at the bottom in terms of agricultural performance when compared with Madhya Pradesh, Chhattisgarh (7.6 percent), Rajasthan (7.4 percent), Jharkhand (6 percent) and national average of 3.6 percent. It implies that the contribution of service sector and

industrial sector accounted for a larger share of GSDP growth rate (Economic Survey of India (2013).

The total cultivated area was 58.89 L. ha. in 2011-12. Net sown area (NSA) declined to 49.85 L. ha. in 2011-12 from 56.38 L. ha. in 1950-51. It indicates that land is being used for non-agricultural purposes. Land used for non-agricultural purposes increased from 9.8 percent in 1950s to 16.17 percent in 2000s. The average size of landholding by small and marginal farmers is at a very low level. The semi-medium, medium and large farmers accounted for a small proportion (9 percent) of the holdings but operated a higher proportion (41 percent) of the total area. The large farmers are having the highest average land holding of 20.59 ha. followed by medium farmers with 5.61 ha. The average size of land holding declined to 0.80 ha in 2010-11 from 0.83 ha in 2005-06 (Department of Economics and Statistics, Government of Tamil Nadu, 2013).

**Table: 3.1 Socio-economic Indicators of the Sample Districts and Tamil Nadu**

Socio-economic Indicators	The Nilgiris	Trichirapalli	Tamil Nadu
Total Population	7,35,071 (1.02)	10,76,588 (1.49)	721,47,030
Male	3,60,170 (1.00)	5,34,392 (1.48)	361,37,975
Female	3,74,901 (1.05)	5,42,196 (1.51)	360,09,055
SC	2,38,014 (2.08)	3,99,493 (3.37)	118,57,504
ST	28,373 (4.36)	18,912 (2.91)	6,51,321
Literacy Rate (Percent)	77.46	83.23	80.09
Sex Ratio	972	1013	996
Agriculture Indicators:			
Irrigation Intensity	1.0	1.1	1.19
Administrative Position:			
Sub-divisions	2	4	215
CD Blocks	6	14	220
Taluks	6	11	220
Town Panchayats	13	17	559
Village Panchayats	35	63	12524

Source: Statistical Hand Book, (2014) Government of Tamil Nadu

### 3.1 State and District Income

The growth rate of GSDP at current (2004-05) prices was registered at Rs.21900322 lakhs in 2004-05 and it has increased to Rs. 58489626 lakhs in 2010-2011 registering an annual average growth of 9.86 percent. During the same period, the primary sector of GSDP consisting of agriculture and allied activities, forestry, fishing and mining and quarrying had in an average increased from 11.87 percent to 14.09 percent per annum. The growth performance gradually increased over a period of time (Table 3.2).

The share of GDDP of Trichirapalli in GSDP of Tamil Nadu (at current prices) increased from 4.06 percent in 2004-05 to 4.45 percent in 2010-11, whereas, the share of GDDP of Nilgiris in the GSDP of Tamil Nadu declined from 1.13 percent in 2004-05 to 0.97 percent in 2010-11.

Table: 3.2 Gross District Domestic Products of Sample Districts and GSDP of Tamil Nadu at Current Price, 2004-05

Years	The Nilgiris	Trichirapalli	Tamil Nadu
2004-05	247517 (1.13)	889696 (4.06)	21900322
2005-06	259780 (1.01)	1055026 (1.09)	25783345
2006-07	319587 (1.03)	1275838 (4.11)	31052373
2007-08	351365 (1.00)	1471293 (4.19)	35081864
2008-09	425941 (0.92)	1743863 (3.78)	46133605
2009-10	502071 (1.05)	2141114 (4.46)	47973342
2010-11	568663 (0.97)	2601998 (4.45)	58489626
2011-12	630904 (0.95)	2897558 (4.35)	66720168

Source: District Income Estimates: 2004-05 to 2010-11, Base Year 2004-05, GDDP, Department of Economics and Statistics, Government of Tamil Nadu, Chennai-18.

Table: 3.3 Gross District Domestic Products of Sample Districts and GSDP of Tamil Nadu at Constant Prices 2004-05

Years	The Nilgiris	Trichirapalli	Tamil Nadu
2004-05	247517 (1.13)	889696 (4.06)	21900322
2005-06	259332 (1.04)	1027840 (4.12)	24956705
2006-07	288462 (1.00)	1189635 (4.14)	28752968
2007-08	306869 (1.01)	1294053 (4.24)	30515680
2008-09	327505 (1.02)	1426827 (4.43)	32179336
2009-10	354855 (1.00)	1617961 (4.54)	35663186
2010-11	391846 (0.97)	1854074 (4.60)	40341573
2011-12	408432 (0.95)	1942192 (4.49)	43323803

Source: District Income Estimates: 2004-05 to 2010-11, Base Year 2004-05, GDDP, Department of Economics and Statistics, Government of Tamil Nadu, Chennai-18.

The GSDP of Tamil Nadu at constant (2004-05) prices which was at Rs.21900322 lakhs in 2004-05 increased to Rs.40341573lakhs in 2010-2011 registering an annual average growth of 9.86 percent. The share of Trichirapalli district GDDP in GSDP (at constant prices) of Tamil Nadu increased from 4.06 percent in 2004-05 to 4.60 percent in 2010-11 and that means the an increase in income of 0.54 percent. On the contrary, the share of GDDP in the GSDP ratio of the Nilgiris declined from 1.13 percent to 0.97 percent (Table 3.3).

### 3.1.2 Sectoral Contribution of GSDP in Tamil Nadu

Tamil Nadu is mainly driven by the service sector. The agriculture sector has been decreasing in importance in the last three decades, whereas the manufacturing industry has retained its position. According to Vision 2023, there would be more industrial parks and tax exemptions would be given as incentives to the traders.

Agriculture in spite of the decline in contribution to GSDP continues to be a key sector in Tamil Nadu supplying raw materials to agri-business industries. Large section of the population earns its livelihood from this sector. The percentage of sectoral contribution of Nilgiris, Trichirapalli districts and Tamil Nadu during 2004-05 to 2010-11 is presented in Table 3.4.

Table 3.4: Sectoral Contribution of Nilgiris, Trichirapalli Districts and Tamil Nadu: 2004-05 to 2010-11 at Current Prices (Percent)

Years	The Nilgiris			Trichirapalli			Tamil Nadu		
	Primary	Secondary	Service	Primary	Secondary	Service	Primary	Secondary	Service
2004-05	23.00	21.73	55.27	9.38	22.44	68.18	11.87	30.90	57.23
2005-06	19.25	19.77	60.98	9.46	23.02	67.52	12.29	31.05	56.65
2006-07	25.62	15.57	58.82	9.82	22.12	68.05	12.62	31.16	56.23
2007-08	23.02	15.98	61.00	9.23	22.08	68.68	12.51	30.53	56.96
2008-09	24.85	14.41	60.74	8.47	21.25	70.28	10.86	24.52	51.61
2009-10	26.73	14.32	58.96	10.63	22.15	67.22	13.74	29.56	56.71
2010-11	21.81	15.39	62.80	9.79	23.74	66.46	14.09	30.00	55.91
2011-12	19.56	14.59	65.85	9.68	21.79	68.53	13.91	29.52	56.57

Source: Department of Economics and Statistics, Government of Tamil Nadu, Chennai-18

Note: GDDP at Current Prices, 2004-05, GSDP at Current Prices 2004-05.

At current prices, the share of primary sector in Nilgiris district declined from 23 percent in 2004-05 to 21.81 percent in 2010-11. The primary sector's contribution in Tamil Nadu as a whole increased from 11.87 percent in 2004-05 to 14.09 percent in 2010-11, whereas in Trichirapalli district, it increased to 9.79 percent in 2010-11 from 9.38 percent in 2004-05. The highest share of service sector is occupied by Trichirapalli district, with a slight decline from 68.18 percent in 2004-05 to 66.46 percent in 2010-11. In Nilgiris district, the percentage share of service sector increased from 55.27 percent to 62.80 percent during the same period. For Tamil Nadu as a whole, the share of service sector declined from 57.23 percent in 2004-05 to 55.91 percent in 2010-11.

From Table 3.5, we find that at current prices, there was decline in the contribution of primary sector to GSDP in the districts of our study namely, Trichirapalli and Nilgiris and as well as for Tamil Nadu as a whole from 2004-05 to 2010-11. In the case of secondary sector, there was marginal increase in its contribution to GDDP in Trichirapalli district and Tamil Nadu as a whole but in the case of Nilgiris, there was a steep decline from 21.73 percent in 2004-05 to 15.66 percent in 2010-11. But the contribution of service sector to GSDP increased in both the districts (Trichirapalli and Nilgiris) as well as in Tamil Nadu as a whole.

Table 3.5: Sectoral Contribution of Nilgiris, Trichirapalli Districts and Tamil Nadu: 2004-05 to 2010-11 at Constant Prices (Percent)

Year	The Nilgiris			Trichirapalli			Tamil Nadu		
	Primary	Secondary	Service	Primary	Secondary	Service	Primary	Secondary	Service
2004-05	23.00	21.73	55.27	9.38	22.44	68.18	11.87	30.90	57.23
2005-06	21.24	19.17	21.23	9.02	22.84	8.94	11.68	31.06	11.06
2006-07	22.32	15.61	62.07	8.68	21.52	69.81	11.43	30.63	57.94
2007-08	21.01	15.48	63.51	7.34	21.29	71.37	10.33	29.99	59.68
2008-09	18.93	14.67	66.40	6.31	20.38	73.31	9.57	27.85	62.58
2009-10	19.48	15.25	65.28	6.86	22.16	70.98	9.20	30.44	60.36
2010-11	17.71	15.66	66.63	5.74	23.52	70.75	8.72	31.34	60.19
2011-12	15.50	14.56	69.94	5.79	21.02	73.19	8.94	30.10	69.96

Source: Department of Economics and Statistics, Government of Tamil Nadu, Chennai-18

Note: GDDP at Constant Prices, 2004-05, GSDP at Constant Prices 2004-05.

### 3.1.3 Land Use Pattern

The land use pattern has witnessed significant changes over a period of time in Tamil Nadu. There is increase in cultivable waste, current fallows, other fallows, indicating availability of potential for improvement of rainfed areas and need for special efforts. There is also a significant increase in the forest area and steady decline in barren and uncultivable land in the state. Due to rapid urbanization and modernization, the total geographical area of the state has undergone a vast change. The ratio of land put to non-agricultural activities had significantly increased from 9.8 percent in 1950s to 15 percent in 2000. The share of net area sown, in total geographical area of the state has come down from 43.2 percent in 1990s to 38.9 percent in 2007-08.

Table 3.6: Land Use Pattern in Sample Districts and Tamil Nadu: 2009-10

Area	The Nilgiris		Trichirapalli		Tamil Nadu	
	Actual	Percent	Actual	Percent	Actual	Percent
Total Geographical Area (000 ha.)	254485	1.96	440383	3.38	13033072	-
Area under Forest	142577	6.70	36773	1.73	2126672	16.32
Land not Available for Cultivation						
Land but Non-agriculture used	9977	0.50	85083	3.92	2175608	16.70
Barren Uncultivated Land	3375	0.69	12598	2.57	490335	3.76
Other Uncultivated Land	2008	0.62	7316	2.24	326445	2.51
Fallow Land						
Current Fallow	9147	0.82	29239	2.62	1116981	8.58
Other Fallow	1568	0.11	100878	6.55	1542137	11.84
Net Sown Area	76992	1.57	165391	3.39	4892142	37.54

Source: Department of Economics and Statistics, Government of Tamil Nadu, Chennai-18

The details of land use pattern in Tamil Nadu during 2009-10 are furnished in Table 3.6. The total geographical area was 130.33 lakh ha. during 2009-10. Out of that, Trichirapalli and Nilgiris districts have occupied 3.38 percent and 1.96 percent respectively of the total geographical area of Tamil Nadu. The area under forest is around 21.26 lakh ha., (16.22 percent) 1.42 lakh ha., (6.70 percent) and 3.67 lakh ha., (1.73 percent) in Tamil Nadu as a whole, Nilgiris and Trichirapalli respectively. The barren and uncultivable land was 4.90 lakh ha., 3.37 thousand ha., and 12.59 thousand ha. for Tamil Nadu, Nilgiris and Trichirapalli respectively. The net area sown was 48.92 lakhs ha., (37.54 percent) 76.99 thousand ha., (1.57 percent) and 1.65 lakh ha (3.39 percent) for Tamil Nadu, Nilgiris and Trichirapalli respectively.

### 3.1.4 Irrigation Sources

Irrigation is one of the important inputs used in the agricultural sector. In recent years, majority of the farmers mainly depend on ground water and river water. Over a period of time, utilization of water in the society has increased manifold due to agriculture use, domestic and industries purposes. As a result, the water level has witnessed declining trend. In Tamil Nadu, there may be acute scarcity of ground water in some of the places like Coimbatore, Dharmaputi, Krishnagiri, Dindigul, Nagapattinam, Namakkal, Salem, Theni, Vellore and Tiruvannamalai districts.

Table 3.7: Area Irrigated: 2011-12 (Area in Hectares)

Districts	Gross Area Irrigated	Percent of GAI to Gross Area Sown	Net Area Irrigated	Percent of Net Area Irrigated to Net Area Sown	Area Irrigated More than Once	Irrigation Intensity
The Nilgiris	383 (0.01)	0.49	383 (0.01)	0.49	0	100
Trichirapalli	108389 (3.09)	56.01	98523 (3.33)	56.42	9866 (1.77)	110
Tamil Nadu	3518822	60.42	2964027	58.78	554795	119

Source: Department of Economics and Statistics, Government of Tamil Nadu, Chennai-18

Note: Figures in bracket parentheses are Percent

The area irrigated during 2011-12 is presented in Table 3.7. The share of Gross Area Irrigated (GAI) in Tamil Nadu is to 35.19 lakhs ha. during 2011-12. Out of that,

Trichirapalli district occupied the highest share of (3.09 percent) than that of Nilgiris (0.01 percent). The Net Area Irrigated (NAI) in Tamil Nadu during 2011-12 was 29.64 lakh ha, whereas in Trichirapalli, it is 3.33 percent which is higher than that of Nilgiris (0.01 percent). The irrigation intensity for Tamil Nadu as a whole was 1.19 percent, but between the two district of Trichirapalli and Nilgiris, Tirchy was having high intensity of 1.10 percent than that of Nilgiris (1.0 percent).

### **3.1.5 Cropping Pattern**

The area under food crops occupied a predominant share of 70 percent of the total gross cropped area and the remaining 30 percent is covered under non-food crops. Among the food crops, paddy, sugarcane and pulses have the largest share. Among the non-food crops cotton, turmeric and groundnuts occupy a sizable share in Tamil Nadu. The area under total food and non-food crops had declined from 65.47 lakhs ha. in 1998-99 to 57.37 lakhs ha. in the 2009-10. As regards the area under total cereals, there had been a decline in area to the extent of 15.71 percent during the period. The cropping pattern in Nilgiris, Trichirapalli districts and Tamil Nadu during 2009-10 is provided in Table 3.8.

Table 3.8: Cropping Pattern in Nilgiris, Trichirapalli Districts and Tamil Nadu: 2009-10  
(Area in Hectares)

Crops	The Nilgiris		Trichirapalli		Tamil Nadu	
	Area	Percent	Area	Percent	Area	Percent
Food Crops: Paddy	509	0.66	64296	35.49	1845553	33.12
Total Cereals	513	0.67	99382	54.86	2498305	44.84
Green Gram	12	0.02	464	0.26	138138	2.48
Black Gram	-	-	8348	4.61	259722	4.66
Total Pulses	12	0.02	11125	6.14	535819	9.62
Total Food Grains	525	0.68	110507	61.01	3034124	54.46
Turmeric	7	0.01	1003	0.55	33366	0.60
Banana	1064	1.38	8534	4.71	113681	2.04
Mango	22	0.03	2496	1.38	132697	2.38
Potato	1161	1.51	-	-	4611	0.08
Onion	-	-	5204	2.87	31024	0.56
Sugarcane	-	-	4478	2.47	293329	5.26
Total Food crops	11809	15.34	143756	79.36	4098090	73.55
Non- Food Crops	65183	84.66	37387	20.64	1473620	26.45
Groundnut	5	0.01	11540	6.37	413011	7.41
Coconut	79	0.10	6490	3.58	400466	7.19
Sunflower	-	-	1645	0.91	14268	0.26
Cotton	5	0.01	9319	5.14	104095	1.87
Tobacco	-	-	-	-	7051	0.13
Total Fruits and Vegetables	8389	10.90	24141	13.33	614406	11.03
Total Foodgrains and Non-food crops	76992	100.00	181143	100.00	5571710	100.00

Source: Department of Economics and Statistics, Government of Tamil Nadu, Chennai-18

The foodgrains as a whole occupied the highest share of 54.46 percent of area in Tamil Nadu in 2009-10. And the area under total cereals was 44.84 percent. Paddy occupied an area of 18.45 lakhs ha. and it accounted for 33.12 percent of the total cropped area under food and non-food crops. Fruits and vegetables accounted for 11.03 percent of area, groundnut 7.41 percent and sugarcane 5.26 percent. The area under total pulses accounted for 9.62 percent of the total area under food and non-food crops in the State.

In Nilgiris district, the total area under non-food crops is 84.66 percent in 2009-10. But the area under foodgrains was the lowest at 15.34 percent. Fruits and vegetables

occupied 10.90 percent of the area. Potato is a dominant crop in the area and it occupied 1.51 percent of the area, followed by banana (1.38 percent).

In Trichirapalli district, paddy cultivation is a leading crop. The area under paddy cultivation is 35.49 percent of the total area under cultivation. The area under fruits accounted for 13.33 percent of the total area under food and non-food crops in that district. The increase in area of fruits was more prominent in banana as compared to the other fruits. The area under groundnuts was 6.37 percent, followed by banana cultivation (4.41 percent).

It may be of interest to note from Table 3.8 that while the area under total food crops accounted for 73.55 percent in Trichirapalli district, in Nilgiris, it was only 15.34 percent, whereas only 26.45 percent of area was under non-food crops in Trichirapalli, for Nilgiris, it was 84.66 percent. It shows that that Nilgiris with mountainous terrain with slopes is not suitable for cultivation of food crops, especially, paddy and Trichirapalli is in the plains with irrigation facilities.

### **3.1.6 Operational Holdings**

The distribution of holdings by farm size and average size of holdings in Nilgiris, Trichirapalli Districts and Tamil Nadu during 2010-11 are furnished in Table 3.9. The total area of holdings of Tamil Nadu was 53.0 lakh ha. in 2010-11. Out of the total area, the medium size of farms occupied 35.51 percent of the area, followed by marginal farms (34.67 percent), and small size farms occupied 25.81 percent of total operational holdings of Tamil Nadu. The size of farm holdings in Trichirapalli district is higher than Nilgiris district in all the farm sizes except for large farms. From Table 3.9, we find that in Trichirapalli, marginal farms accounted for 5.23 percent of the area of landholdings, whereas in Nilgiris, large farms accounted for 17.76 percent of the area.

Table 3.9: Farm Size Group-wise Distribution and Average Size of Holdings in Nilgiris, Trichirapalli Districts and Tamil Nadu: 2010-11 (Area in Ha.)

Farm Size	The Nilgiris		Trichirapalli		Tamil Nadu	
	Number	Area	Number	Area	Number	Area
Marginal Farm	52036 (1.04)	18026 (0.98)	233525 (4.67)	96189 (5.23)	4996103 (76.30)	1837624 (34.67)
Small Farm	8038 (0.82)	10942 (0.80)	47238 (4.81)	67019 (4.90)	981687 (14.99)	1367713 (25.81)
Medium Farm	3887 (0.70)	13603 (0.72)	20558 (3.70)	65697 (3.49)	556217 (8.49)	1881822 (35.51)
Large Farm	408 (2.96)	37806 (17.76)	345 (2.51)	5940 (2.79)	13763 (0.21)	212845 (4.02)
Total Farm	64369 (0.98)	80377 (1.52)	301666 (4.61)	234845 (4.43)	6547770 (100.00)	5300004 (100.00)

Source: Agriculture Census, 2010-11 Government of India, New Delhi

Note: Figures in brackets shows average size of holdings in The Nilgiris and Trichirapalli districts respectively.

But for Tamil Nadu, figures in bracket show the percentage of respective total.

### 3.2 The Study Area: An Overview

Out of 32 districts of Tamil Nadu, Nilgiris and Trichirapalli occupy an important place in the cultivation of potato and banana. As these horticultural crops are dominant in the districts of Trichirapalli and Nilgiris, the present study has purposively selected banana and potato crops.

In Trichirapalli district for TMC and EMC, samples of 50 and 15 farmers were selected in accordance with the method suggested by the Ministry of Agriculture. For Nilgiris district, for potato cultivation, the same method has been followed. The sample size consists of 50 farmers from TMC and 15 farmers from EMC for banana in Trichirapalli district and 50 farmers from TMC and 15 farmers from EMC for potato in Nilgiris district.

#### 3.2.1 Nilgiris District Profile

Nilgiris is one of the smallest districts in Tamil Nadu. It is situated in the junction of the Western and Eastern ghats and popularly known as Blue Mountain. It lies between 11.10 degree centigrade and 11.45 degree centigrade and the Northern longitude and 76.11 degree centigrade and 77.20 degree centigrade of Eastern latitude. The geographical area is

2,543 sq. km. According to Census (2011), the population of the district is 7.35 lakhs, SC and STs accounted for 32.08 percent and 4.46 percent respectively. The literacy rate is higher at 77.46 percent compared to the All India rate of 74.04 percent. The district had a total of 3.49 lakh workers. It is ranked first in Economic Environment index ranking of districts in Tamil Nadu, not including Chennai (Institute for Financial Management and Research, August, 2009).

The district has an area of 2,452.50 km. The district is basically a hilly region, situated at an elevation of 2000 to 2,600 metres above MSL. About 60 percent of the cultivable land falls under the slopes ranging from 16 to 35 percent. The district usually receives rain both during South West Monsoon and North East Monsoon. There are 16 rainfall registering stations; average annual rainfall is 1,920.80 mm. Every year, the Government of Tamil Nadu conducts "Flower Show" during summer. All kinds of fruits are displayed during that time.

The general climatic condition in this district is cool. High elevation of this district results in low temperature, which is further lowered by excessive moisture content of the atmosphere resulting from the exaltation by the vegetation. The range of temperature was between 10.0 C and 29.8 C during 2007-08. The total rainfall during 2008-2009 was 1872.4 mm.

There are many tribes living in this district and they include Kurumba, Irula, Paniyan and Kattunaicken, and Badagas. They are the Toda and Kota people, whose culture is based upon cattle, and whose red, black and white embroidered shawls, and silver jewellery is much sought after.

The livelihood of the people of the district depends upon horticulture crops like potato, cabbage, carrot, tea, coffee, spices and fruits. The main plantation crops are tea and coffee. The gross area under cultivation is 77,520 ha. Some vegetable crops like potato, cabbage and cauliflower are raised in sizable tracts. Cardamom, pepper and ginger are

cultivated in the districts the major spices. Due to increase in the cost of cultivation of potato and other tubers, some farmers in the district have switched over to planting tea in recent years.

Tea is grown at elevations of 1,000 metres to above 2,500 metres. The area also produces Eucalyptus oil and temperate zone vegetables. Potato and other vegetables are raised in Udhagai and Coonoor taluks. Paddy and ginger are grown in Gudalur and Pandalur taluks. Paddy is also grown in Thengumarahada area in Kotagiri taluk. Besides these crops, ragi, samai, wheat, vegetables are also grown to a small extent. The crops are mainly rain-fed.

### **3.2.2 Potato Cultivation**

According to FAO (2013), the two emerging Asian countries China and India together contribute one-third of the global potato production. The consumption is increasing due to increasing industrialisation. The FAO underlined potential of potato in the food security of developing nations and declared it the food for future. It is grown in almost all the states under various conditions in India. About 80 percent of the potato is grown in Indo-Gangetic plains of north India from October to March. About 8 percent is cultivated in hills during April to October. In plateau regions of Eastern peninsular India, about 6 percent of the potatoes are grown during July to October. In India, the highest shares in potato production are from Uttar Pradesh (31 percent), West Bengal (26 percent) and Bihar (15.3 percent). It is the third most important food crop in the world after rice and wheat.

In India, the cultivation of potato crop is in 18.19 million ha. and it is nearly is 1.25 percent of total cultivable area. Among vegetables, the share of potato is estimated to be 26 percent. It was grown in the gardens of Surat and Karnataka in 1675. The cultivation of potato started in northern hills. In 1823 farmers in Nilgiris started cultivating potatoes.

In Tamil Nadu, Dindigul and Nilgiris districts account for one-fourth of the total area under potatoes in Nilgiris. Nilgiris district and Palani hills cover 4000 ha. It is

cultivated in three seasons like neer bogam (March- July), kar bogam (May-August), Kadai bogam (August-December).

From Table 3.10, we find that the area under potato cultivation in Tamil Nadu and Nilgiris district declined from 7773 ha. and 5259 ha in 1985-86 to 5919 ha. and 1547 ha. in 2013-14, respectively. In other words, the area under potato cultivation declined by 40 percent and 60 percent respectively.

In Tamil Nadu as a whole, the production of potatoes declined from 1, 33,520 tonnes in 1985-86 to 122737 tonnes in 2013-14. And in Nilgiris, the production declined from 99820 tonnes in 1985-86 to 41,068 tonnes in 2013-14. In other words, production of potatoes declined by 40.2 percent and 35.3 percent in Tamil Nadu as a whole and in Nilgiris respectively over the period from 1985-86 to 2013-14.

The productivity of potato in Nilgiris district increased from 18,981 kg./ha. in 1985-86 to 26,547, kg./ha. in 2013-14, whereas for Tamil Nadu as a whole, the yield per ha. increased from 17,181 kg./ha. to 20,736 kg./ha. In terms of percentages, the increase in yield of potatoes was 13.40 percent and 12.90 percent respectively for Nilgiris and Tamil Nadu over the period. The productivity of potatoes in Nilgiris district was the highest at 29,759 kgs./ha. and 30,682 kg./ha. and during 1991-92,2008-09 respectively, whereas for Tamil Nadu as a whole, yield was 24024 kg./ha. and 23096 kg./ha. during 1987-88 and 1991-92 respectively. It may be noted that the yield rate of Nilgiris district is higher than that of Tamil Nadu.

Table 3.10: Trends of Area, Production and Productivity of Potato Crop in Nilgiris District and Tamil Nadu

Year	Area in Ha.		Production in Tonnes		Yield (Kg./ Ha.)	
	The Nilgiris	Tamil Nadu	The Nilgiris	Tamil Nadu	The Nilgiris	Tamil Nadu
1985-86	5259	7773	99820	133520	18981	17181
1986-87	5609	8336	99090	168320	17666	20192
1987-88	5882	8728	145690	209680	24769	24024
1988-89	4559	6799	88040	116830	19311	17183
1989-90	6442	8680	121450	159900	18853	18421
1990-91	3331	5310	73370	115730	22026	21795
1991-92	2659	4917	79130	113560	29758	23096
1992-93	2867	5411	84940	125120	29626	23123
1993-94	3301	5816	91990	128360	27869	22084
1994-95	2395	4781	50950	83790	21272	17526
1995-96	2729	3802	58600	82160	21209	21610
1996-97	3201	4279	67290	83050	21022	19409
1997-98	3357	5571	55410	90180	16507	16187
1998-99	3227	5518	70230	99620	21762	18054
1999-2000	2750	5640	63850	97250	23218	17243
2000-01	2666	5570	64044	103288	24023	18544
2001-02	2743	5561	70860	100687	25833	18106
2002-03	1457	4537	28325	73362	19440	16169
2003-04	1720	4341	33055	70103	19217	16148
2004-05	2010	5034	38288	79060	19048	15705
2005-06	1950	5005	43949	74593	22538	14903
2006-07	1957	5190	39498	77443	20183	14921
2007-08	1540	4066	36982	68169	24014	16765
2008-09	1292	4367	39641	80539	30681	18438
2009-10	1161	4611	29065	84683	25034	18365
2010-11	1270	4624	33086	88932	26052	19233
2011-12	1786	4673	35229	77791	25442	19732
2012-13	1197	4268	27070	76221	22616	17848
2013-14	1547	5919	41068	122737	26547	20736

Source: Department of Economics and Statistics, Government of Tamil Nadu 2013

Thus from Table 3.10 based on our simple statistical analysis, we find that though the area under potato cultivation shrunk and production declined over the period (1985-86

to 2013-14), there was increase in yield (kg/ha.) or productivity over the period in Nilgiris and Tamil Nadu as a whole because of technological advancement and incentives provided by the government.

### **3.2.3 Trichirapalli District Profile**

Trichirappalli district is located centrally in Tamil Nadu and bordered by Namakkal, Salem, Karur, Ariyalur, Pudukkottai, Thanjavur and Dindigul districts. It is basically an agrarian district with industrial growth supported by the public sector companies like BHEL, HAPP, OFT and Railway workshop. The district is a pioneer in fabrication industry and frontrunner in the fabrication of windmill towers in the country. The area of the district is 4,4303 square km and it includes 11 taluks, 41 towns, and 17 town panchayats.

According to Census of India, (2011), the size of population of the district is 27, 22,290 with a sex ratio of 1,013 females for every 1,000 males. The sex ratio of the district is above the national average rate of 929. Out of the total population, SC and STs accounted for 17.14 percent and 0.67 percent of the total population of the district respectively. The average literacy rate is 74.90 percent, which is better than that of the national average of 72.99 percent. The number of households in the district is 6, 98,404. The number of workers in the district are 12, 13,979; out of that, there are 161,657 cultivators, 319,720 main agricultural labourers, 25,174 in household industries and 575,778 other workers.

The major crops cultivated by the farmers are rice, sugarcane, banana/plantain, coconut, cotton, betel, corn, and groundnut. Banana is one of the major crops, which is cultivated on a large scale in this district.

### **3.2.4 Banana Cultivation**

The major banana exporting countries are India, Ecuador, Colombia, Costa Rica and Philippines and major importing countries are USA, Belgium, Germany and UK. According to FAO estimates, India occupies the highest area under banana in the world. It may be noted that 11 percent of the total global area under banana belonged to India.

India ranks first in banana production contributing about 23 percent in world pool of banana production.

India is the largest producer of banana next to mango. The major banana producing states are Maharashtra, Kerala, Tamil Nadu, Gujarat, Bihar, West Bengal, Assam, Andhra Pradesh, and Karnataka. Tamil Nadu produces various varieties such as rasthali, amrif pant, rajali nendram, sakkli, peyan and natti.

The area under banana cultivation in Tamil Nadu increased from 59,305 ha. in 1985-86 to 83,308 ha. in 1993-94; it further increased to 89,856 ha. in 1998-99 and 94,648 ha. in 2005-06. But the area declined from 1,15,804 ha. in 2008-09 to 98,887 ha. in 2011-12 and 92,413 ha. in 2013-14. There was heavy rainfall in the district and that led to the decline in area under banana crop during that period.

The percentage share of area under banana increased from 21.27 percent in 1985-86 to 26.68 percent in 1990-91; thereafter, it declined to 10.84 percent in 2001-02 and 8.35 percent in 2006-07 and 8.87 percent in 2011-12. The area under banana declined by 12.4 percent during three decades due to urbanisation of Trichirapalli and conversion of farm lands into real estate.

The production of banana in Tamil Nadu increased from 18.40 lakh tonnes in 1985-86 to 22.88 lakhs tonnes in 1991-92; it further increased to 42.03 lakh tonnes in 1997-98 and 53.84 lakh tonnes in 2007-08 and after that it declined to 52.32 lakh tonnes in 2011-12 and 43.88 lakh tonnes in 2013-14. The overall production trend shows an increase of 25.48 lakh tonnes over the three decades from 1985-86 to 2013-14. The percentage share of production of this district increased from 25.06 percent in 1985-86 to 27.78 percent in 1991-92; after that declined to 24.09 percent, and 6.81 percent in 1995-96 and 2011-12, respectively. The production level declined by 18.25 percent during 28 year period. This implies that there is change in cropping pattern among majority of the farmers in the district. They have switched over to other crops.

Table 3.11: Area, Production and Productivity of Banana Crop in Trichirapalli District and Tamil Nadu

Years	Area in Ha.		Production in Tonnes		Yield (Kg/Ha.)	
	Trichirapalli	Tamil Nadu	Trichirapalli	Tamil Nadu	Trichirapalli	Tamil Nadu
1985-86	12611	59305	460990	1840170	45692	38788
1986-87	12589	56121	451130	1690630	44795	37656
1987-88	12575	53612	357910	1459170	35578	34021
1988-89	12740	59326	310240	1609530	30440	33913
1989-90	13259	55661	495930	1750860	46754	39320
1990-91	16092	60317	603660	1958490	46890	40587
1991-92	14388	66378	635480	2288030	55211	43089
1992-93	13326	74080	471790	2234280	44254	37700
1993-94	16431	83308	589820	2619040	44870	39297
1994-95	14709	83255	796170	3692310	54128	44349
1995-96	15495	81132	905660	3760180	58448	46346
1996-97	8592	79314	364030	3117780	42368	39309
1997-98	8909	87132	564660	4203560	63382	48244
1998-99	9276	89856	412090	3599040	44425	40053
1999-00	8860	85122	360880	3132240	40731	36797
2000-01	8416	82767	397616	3069540	47245	37086
2001-02	9167	84542	419890	3543796	45804.52	41917
2002-03	9020	76771	384166	2836916	42590.46	36952
2003-04	7521	71088	346490	2514729	46069.69	35374
2004-05	8520	81498	417825	3461788	49040.49	42476
2005-06	8871	94648	404377	4647635	45584.1	49104
2006-07	8790	105206	437633	5151394	49787.63	48965
2007-08	9191	112793	394532	5384825	42925.93	47740
2008-09	8465	115804	308928	5148134	36494.74	44452
2009-10	8534	113681	371673	4887841	43552.03	42996
2010-11	8233	107394	416415	4800472	50579	44700
2011-12	8767	98887	358378	5232871	55149	43695
2012-13	8870	105775	457200	3909764	51545	36879
2013-14	7144	92463	420932	4388779	52614	41534

Source: Department of Economics and Statistics, Government of Tamil Nadu, 2013

The yield rate in Trichirapalli increased from 45,692 kg./ha. in 1985-86 to 58,448 kg./ha in 1995-96 and 63,382 kg./ha in 1997-98 and 52614 kg./ha. in 2013-14, but it declined to 55,149 kg./ha in 2011-12, whereas in Tamil Nadu as a whole, the yield

increased from 38,788 kg./ha. in 1985-86 to 48,244 kg./ha. in 1997-98 and thereafter it declined to 43,695 kg./ha. in 2011-12 and 41534 kg./ha. in 2013-14. The yield rate (kg./ha.) of Trichirapalli district is higher than that of Tamil Nadu. We find from Table 3.11 that there is decrease in area and production in Trichirapalli district and productivity (kg./ha.) of banana increased over the period 1985-86 to 2013-14.

### 3.3 Socio-economic Profile of the Sample Farmers

Socio-economic profile of the district is one of the important indicators of living conditions of the farmers. The following section deals with religion and caste, economic status, age and educational status of the sample respondents; transport and farm machinery, assets, land holding pattern, cropping pattern, and farming methods used in the study area.

#### 3.3.1 Religion and Caste

Trichirapalli and Niligiris districts belonged to different social, cultural, historical and political, economic and ethnical groups. Different social groups of people can be easily distinguished by their socio-economic and cultural life. With the advancement of civilization in the society, water-tight classifications of castes and linking castes with profession have lost their significance.

Table 3.12: Religion and Caste of the Sample Farmers Growing Banana Crop

Particulars	TMC (Percent)	EMC (Percent)
Hindu Households	98.0	87.0
Muslim Households	2.0	13.0
SC Households	22.0	26.7
ST Households	2.0	6.7
OBC Households	70.0	53.3
Other Households	6.0	13.3

Source: Field Survey Data

The religion and caste of the sample households for banana crop are presented in Table 3.12. A majority of the farmers are growing banana crop among the TMC (98 percent) and EMC (87 percent). The majority of the farmers belonged to OBC-TMC (70 percent) and EMC (54 percent) respectively. It is followed by SC occupying a share of 22

percent and 27 percent for TMC and EMC respectively. It is found that the majority of the farmers cultivating banana in Trichirapalli district are Hindus. The farmers who belonged SC/STs also participated in cultivation of banana in proportion to their size in the population in that district.

Table 3.13: Religion and Caste of the Sample Farmers Growing Potato Crop

Particulars	TMC (Percent)	EMC (Percent)
Hindu Households	96.0	93.0
Muslim Households	4.0	7.0
SC Households	24.0	20.0
ST Households	14.0	13.3
OBC Households	50.0	53.3
Other Households	12.0	13.3

Source: Field Survey Data

Table 3.13 shows the religion and caste of the sample farmers growing potato in Nilgiris district of Tamil Nadu. About 96 percent and 93 percent of the sample farmers are growing potato in Nilgiris district for TMC and EMC respectively. The SC farmers who cultivate potatoes farm 24 percent and 20 percent in TMC and EMC respectively. The ST farmers farm 14 percent and 13 percent for TMC and EMC respectively. More than 50 percent of the farmers who cultivated potato in Nilgiris belonged to OBC category.

### 3.3.2 Economic Status

The economic status of the sample farmers who cultivate banana are presented in Table 3.14. It is seen from the table, that all the sample households are having ration card. About 80 percent of TMC and 87 percent of EMC households are BPL card holders. It means that the majority of the sample farmers belonged to the BPL category. The majority of the sample farmers are having semi-kucha houses: 86 percent and 60 percent for TMC, EMC respectively. The remaining of 14 percent and 40 percent of the sample farmers have pucca houses in the TMC and EMC respectively. About 32 percent of TMC and 47 percent EMC households possess telephones and mobiles for their own use. There are only a few sample households using computer and internet facility.

Table 3.14: Economic Conditions of the Sample Farmers- Banana Crop

Household Characteristics	TMC (Percent)	EMC (Percent)
Owing a Ration Card	100.0	100.0
APL Household	20.0	13.0
BPL Household	80.0	87.0
Pucca House	14.0	40.0
Kuccha and Semi-kuccha House	86.0	60.0
Owning Telephone Landline	32.0	46.7
Owning Mobile	44.0	46.7
Owning Computer	26.0	33.3
Owning Internet	6.0	13.7
Owning Computer and Internet	26.0	26.7

Source: Field Survey Data

Table 3.15: Economic Conditions of the Sample Farmers- Potato Crop

Household Characteristics	TMC (Percent)	EMC (Percent)
Owing a Ration Card	100.0	100.0
APL Household	32.0	26.7
BPL Household	68.0	73.0
Pucca House	48.0	46.7
Kuccha and Semi-kuccha House	52.0	53.3
Owning Telephone Landline	42.0	13.3
Owning Mobile	64.0	73.3
Owning Computer	10.0	13.3
Owning Internet	8.0	13.3
Owning Computer and Internet	9.5	12.1

Source: Field Survey Data

Table 3.15 shows economic conditions of the sample farmers who cultivate potato in Nilgiris district. All the sample farmers in the district possess ration card. Out of that, majority of the sample households- 68 percent of TMC and 73 percent of EMC belonged to below poverty line (BPL) category. A majority of the sample farmers live in kuccha and semi-kuccha houses (52 percent of TMC and 53 percent of EMC). About 48 percent and 47 percent of households in TMC and EMC live in pucca houses. A majority of them possess mobile phone. About 64 percent of TMC and 73 percent of EMC use the mobile phones. But computer and internet facilities are used by a small percentage of sample households. It is observed that the majority of the farmers have poor knowledge to use the modern technology and they do not have adequate marketing channels in the district.

### 3.3.3 Age and Educational Status

Educated farmers are enlightened farmers. Education helps the farmers to adopt modern methods of cultivation which help them to derive the maximum yield. In the sample, households, we find that the farmers have different levels of education.

The age and educational status of the sample households are presented in Table 3.16. It is seen that the average age of the head of the households is 52 years and 49 years for TMC and EMC, respectively. Female headed households are found to be 4 percent in both the channels. The average educational years of the head in a family is found to be 9.48 years and 9.73 years for TMC and EMC, respectively. Generally average education of the sample households are found to be 9.83 years and 9.95 years for both the marketing channels. A majority of the sample farmers are having primary education. It is found to be 73.0 percent for TMC and 47 percent for EMC. Those with secondary education account for 14 percent and 47 percent respectively. There are only a few graduates among TMC and EMC farmers.

Table 3.16: Age and Educational Status of the Sample Farmers- Banana Crop

Head of the Household	TMC	EMC
Average Age of Heads (Years)	52.0	49.2
Percent Female head of household	4.0	4.0
Years of avg. Education of the head	9.48	9.7
Education of the household member(Percent of total)		
Avg. Education of the household members (years)	9.8	9.9
Percent of household member with primary education	72.0	46.7
Percent of household member with secondary education	14.0	46.7
Percent of household member graduation education	10.0	6.7
Percent of household member with PG education	2.0	-

Source: Field Survey Data

Table 3.17: Age and Educational Status of the Sample Farmers- Potato Crop

Head of the Household	TMC	EMC
Average Age of Heads (Years)	48.14	41.6
Percent Female head of household	4.0	-
Years of avg. Education of the head	8.54	6.20
Education of the household member (Percent of total)		
Average Education of the household members (years)	8.60	6.30
Percent of household member with primary education	54.0	40
Percent of household member with secondary education	14.0	6.7
Percent of household member graduation education	14.0	6.7
Percent of household member with PG education	2.0	6.7

Source: Field Survey Data

The average age of the head of the household is found to be 48 years for TMC and 42 years for EMC in Nilgiris district. The average education of head in a family is found to be 9 years and 6 years respectively in TMC and EMC (Table 3.17).

### 3.3.4 Transport and Farm Machinery Assets

The transport and farm machinery assets of the sample farmers for banana and potato crops cultivation are shown in Table 3.18. It is observed that the majority of the sample farmers are having their own bullock carts in Trichirapalli district. For TMC, it is 80 percent and for EMC, it is 73.3 percent respectively. About 24 percent of TMC and 20.0 percent of EMC sample farmers have tractors. The majority of the sample farmers (78 percent in TMC and 73.3 percent in EMC) have bicycles. About 64 percent of the farmers in TMC and 40 percent in EMC possess motorcycles. The sample farmers have trolley (34 percent in TMC and 46.7 percent in EMC) and 42 percent in TMC and 46.7 percent in EMC have harvest machines respectively.

Table 3.18 Transport, Farm Machinery Assets of the Sample Farmers: Banana Crop

Transport, farm and storage assets	TMC (Percent)	EMC (Percent)
Owning Bullock Cart	80.0	73.3
Owning Tractor	24.0	20.0
Owning Trolley	34.0	46.7
Owning Harvest Machine	42.0	46.7
Owning Bicycle	78.0	73.3
Owning Motorcycle	64.0	40.0
Owning Four Wheeler	38.0	40.0
Owning Tiller	42.0	46.7
Owning Pump Set	58.0	66.7

Table 3.19 Transport, Farm Machinery Assets of the Sample Farmers- Potato Crop

Transport, farm and storage assets	TMC (Percent)	EMC (Percent)
Owning Bullock Cart	56.0	60.0
Owning Tractor	44.0	20.0
Owning Trolley	4.0	6.7
Owning Harvest Machine	36.0	66.7
Owning Bicycle	82.0	80.0
Owning Motorcycle	66.0	80.0
Owning Four Wheeler	40.0	46.7
Owning Tiller	46.0	40.0
Owning Pump Set	76.0	53.3

Source: Field Survey Data

In Nilgiris district, the majority of sample farmers have their own bullock carts. It is 56 percent in TMC and 60 percent in EMC respectively. The highest proportion of the sample farmers 82 percent in TMC and 80 percent in EMC own bicycles. About 44 percent of TMC and 20 percent EMC sample households own tractors. 36 percent and 67 percent of the sample farmers in TMC and EMC respectively own harvest machines for their own use and for letting them out on rent. A majority of the sample farmers 66 percent in TMC and 80 percent in EMC own motor cycles. A sizable section of farmers in the sample households (40 percent in TMC and 47 percent in EMC) own four wheelers in the district.

It is found that 46 percent of farmers in TMC and 53.3 percent of farmers in EMC have pump sets in the study area. It is observed that the majority of the sample farmers have adequate infrastructure facilities for cultivating potato (Table 3.19).

### 3.4 Land Holding Pattern

Landholding pattern of the farmers in the sample is given in Tables 3.20 and 3.21. From Table 3.20, we find that the median sizes of farms under Banana in Trichirapalli district are 2.82 ha. and 2.62 ha. for TMC and EMC categories. More than 80 percent of farmers own land and leased out land is only 14 percent. And 71 percent of area the TMC is irrigated and 66 percent of area in the EMC is irrigated through groundwater. Land irrigated through surface water is not much (9.35 percent in TMC and 17 percent in EMC).

Table 3.20: Land Holding Pattern of the Sample Farmers: Banana Crop

Landholding	TMC	EMC
Maximum size of the farm (Ha.)	7.6	8.4
Minimum size of the farm (Ha.)	0.4	0.4
Median size (Ha.)	2.82	2.68
Percent Own Land	85.53	86.0
Percent of Leased Land	14.33	14.0
Percent of Dry Land	19.94	16.74
Percent of irrigated farms (Ground Water)	70.68	66.17
Percent of irrigated farms (Surface)	9.35	16.92

Source: Field Survey Data

From Table 3.21, we find that the medium size of farm in the sample under potato in Nilgiris district is 3.27 ha. in TMC and 4.61 ha. in EMC. The farmers who own land in the sample constitute 50 percent and 64 percent in TMC and EMC respectively. The leased land accounted for 50 percent and 36 percent in TMC and EMC respectively. Nearly, three fourth of the area under potato is irrigated with groundwater in Nilgiris. Only a small area is irrigated with surface water.

Table 3.21: Land Holding Pattern of the Sample Farmers: Potato Crop

Landholding	TMC	EMC
Maximum size of the farm (Ha.)	11.6	10.8
Minimum size of the farm (Ha.)	0.8	1.2
Median size (Ha.)	3.27	4.61
Percent Own Land	50.30	64.0
Percent of Leased Land	50.0	35.94
Percent of Dry Land	19.29	15.67
Percent of irrigated farms (Ground Water)	71.92	76.30
Percent of irrigated farms (Surface)	8.79	6.93

Source: Field Survey Data

### 3.4.1 Cropping Pattern

At present, the cropping pattern has changed due to socio-economic and environmental consequences, technological development. There is increasing tendency among the farmers towards crop specialization and commercialization of agriculture. A majority of the farmers in India as well as in Tamil Nadu are changing their cropping pattern from food crops to commercial crops due to more profits. In Tamil Nadu, the majority of the farmers prefer foodgrains (70 percent) and only 30 percent of farmers cultivate non-food grains.

Table 3.22 presents the cropping pattern of banana growers in Trichirapalli district. Generally, in Trichirapalli district, farmers prefer to cultivate banana, groundnuts, paddy, turmeric crops. A majority of the farmers cultivate banana due to good soil conditions and climatic condition. Groundnut and paddy are alternative crops to banana crop due to Cauvery water sources.

Table 3.22: Cropping Pattern of the Sample Banana Growers (Area in Ha.)

Commodities	Marginal	Small	Medium	Large	Total
TMC Kharif Season					
Banana	3.60	16.40	27.60	20.80	68.40
Paddy	0.80	5.60	9.80	8.00	24.20
Sugarcane	-	2.00	6.00	5.60	13.60
Groundnut	-	-	1.20	8.00	9.20
Turmeric	-	2.00	3.80	0.80	6.60
Rabi Season					
Turmeric	-	0.80	1.60	2.00	4.40
Paddy	-	1.60	4.00	2.80	8.40
Groundnut	4.40	28.40	54.00	48.00	134.80
Total	8.80	56.80	108.00	96.00	269.60
EMC Kharif Season					
Banana	2.40	7.00	4.00	4.00	17.40
Paddy	0.40	2.80	2.00	2.80	8.00
Sugarcane	-	-	0.40	1.60	2.00
Groundnut	-	0.40	1.60	2.00	4.00
Turmeric	-	-	1.20	1.60	2.80
Rabi Season					
Turmeric	-	1.20	0.40	2.00	3.60
Paddy	-	0.40	0.80	0.80	2.00
Groundnut	2.80	11.80	10.40	14.80	39.80
Total	5.60	23.60	20.80	29.60	79.60

Source: Field Survey Data

A majority of the sample farmers (TMC, EMC) cultivate groundnuts. Next to groundnuts, they prefer to cultivate banana; about 41 percent (TMC) and 43 percent (EMC) are marginal farmers. The small farm is 29 percent in TMC and 30 percent in EMC, respectively. The medium size farmers account for 26 percent and 19 percent. Both TMC and EMC farmers cultivate banana crop in Trichirapalli.

Table 3.23: Cropping Pattern of the Sample Potato Growers (Area in Ha.)

Commodities	Marginal	Small	Medium	Large	Total
TMC Kharif Season					
Potato	2.00	11.90	8.40	28.40	50.70
Carrot	2.00	6.20	5.80	13.20	27.20
Beetroot	-	1.60	2.40	4.80	8.80
Cabbage	-	2.60	3.60	5.60	11.80
Garlic	-	-	1.20	2.80	4.00
Rabi Season					
Cauliflowers	-	2.90	5.80	13.60	22.30
Beans	-	0.80	0.80	8.40	10.00
Beetroot	-	0.20	0.80	5.20	6.20
Cabbage	-	3.20	2.80	5.60	11.60
others	-	1.20	2.00	7.60	10.80
Total	4.00	30.60	33.60	95.20	163.40
EMC Kharif Season					
Potato	-	1.60	5.60	10.40	17.60
Carrot	-	1.20	2.40	5.60	9.20
Beetroot	-	0.40	1.60	3.60	5.60
Cabbage	-	-	1.20	3.20	4.40
Garlic	-	-	0.40	2.40	2.80
Rabi Season					
Cauliflowers	-	0.40	0.40	5.20	6.00
Beans	-	-	2.80	8.40	11.20
Beetroot	-	-	3.60	3.60	7.20
Cabbage	-	-	1.60	2.80	4.40
others	-	-	0.40	0.40	0.80
Total	-	3.60	20.00	45.60	69.20

Source: Field Survey Data

The cropping pattern of the sample potato growers is given in Table 3.23. During kharif season, the majority of the farmers grow potato, beetroot, carrot, cabbage and garlic. Nearly, 50 percent of the marginal farmers in TMC cultivate potato and carrot. The small farmers cultivate the potato in the area 39 percent and carrot in the area 20 percent respectively. About 25 percent and 17 percent of TMC farmers cultivate potato and carrot respectively. Generally, cauliflowers, beans, beetroot and cabbage are grown during rabi season. A majority of the TMC farmers' cauliflower during rabi season; it includes 17 percent and 14 percent of medium and large size farmers.

Among EMC farmers, 44 percent, 28 percent and 23 percent are small, medium and large farmers respectively engaged in potato cultivation during kharif season. Carrot is a main vegetables cultivated by among small (33 percent), medium and large farmers (12 percent). During rabi season, 18 percent and 14 percent of large and medium farmers beans.

## Chapter IV

### Comparison of the Benefits and Constraints for the Agents Trading in TMC and EMC

#### 4.1 Introduction

In this chapter, an attempt has been made to compare the benefits and constraints for the agents trading in the Traditional Marketing Channels (TMC) and the Emerging Marketing Channels (EMC). The following section deals with the characteristics of the sample households based on land holdings, modern farm practices, methods of cultivation; labour cost and economic costs of cultivation of banana and potato crops, technologies used in the crop cultivation, cost of production, net returns, and marketing costs are discussed in a detailed manner.

#### 4.2 Average Net Operated Area of Sample farmers

The average net operated area for banana and potato cultivators according to their farm size is presented in Table 4.1. The small and semi-medium categories of sample farmers occupy the highest share of 36 percent of TMC and 47 percent of EMC, and is followed by marginal farmers who occupy a moderate share in banana cultivation. For the potato crop, the highest share of landholdings occupied by small and semi-medium categories of farmers is found to be 40 percent and 20 percent for TMC and EMC, respectively. On the contrary, the lowest share is occupied by large farmers.

Table 4: 1 Distributions of Operational Land Holdings (Net Operated Area) (Percent)

Classification of Sample Farmers	Banana Crop		Potato Crop	
	TMC	EMC	TMC	EMC
Marginal Farmers	14.0	13.3	10.0	20.0
Small farmers	36.0	46.7	40.0	40.0
Semi-Medium Farmers	36.0	26.7	24.0	33.3
Medium Farmers	10.0	13.3	22.0	6.7
Large Farmers	4.0	-	4.0	-

Source: Field Survey Data

Table 4.2: Characteristics of Selected Households as per Land Holdings

Characteristics	Banana Crop		Potato Crop	
	TMC	EMC	TMC	EMC
	Average Age of Heads (Years)			
Marginal Farmers	61.7	52.5	55.8	-
Small farmers	50.2	50.4	46.5	30.7
Semi Medium Farmers	51.6	47.0	45.7	47.3
Medium Farmers	45.2	46.0	48.2	39.8
Large Farmers	56.5	-	59.0	-
	Average Education of Heads (Years)			
Marginal Farmers	8.1	8.0	9.60	-
Small farmers	9.6	9.0	8.50	6.0
Semi Medium Farmers	10.1	11.0	8.33	3.3
Medium Farmers	7.6	11.5	7.55	8.6
Large Farmers	12.5	-	12.5	-
	Average Family Size (Numbers)			
Marginal Farmers	4.9	-	3.8	-
Small farmers	3.6	3.7	4.00	3.7
Semi Medium Farmers	4.2	4.0	4.08	4.3
Medium Farmers	5.0	3.5	4.09	5.2
Large Farmers	3.0	-	4.50	-
	Main Occupation (Percent to Total)			
Marginal Farmers	14.0	13.3	10.0	-
Agriculture	4.0	13.3	10.0	-
Allied Sector	6.0	-	-	-
Others	4.0	-	-	-
Small farmers	36.0	46.7	40.0	20.0
Agriculture	20.0	26.7	32.0	6.7
Allied Sector	12.0	13.3	8.0	13.3
Others	4.0	6.7	-	-
Semi Medium Farmers	36.0	26.7	24.0	40.0
Agriculture	18.0	13.3	10.0	40.0
Allied Sector	18.0	13.3	14.0	-
Others	-	-	-	-
Medium Farmers	10.0	13.3	22.0	33.3
Agriculture	8.0	6.7	10.0	26.7
Allied Sector	2.0	6.7	12.0	6.7
Others	-	-	-	-
Large Farmers	4.0	-	4.0	6.7
Agriculture	-	-	4.0	6.7
Allied Sector	2.0	-	-	-
Others	2.0	-	-	-
Total	100.0	100.0	100.0	100.0
Agriculture	50.0	60.0	66.0	80.0
Allied Sector	40.0	33.3	34.0	20.0
Others	10.0	6.7	-	-

Source: Field Survey Data

The characteristics of sample farmers for banana and potato cultivation are presented in Table 4.2. It is noted that the average family size for TMC varied from 3.0 to 4.9, whereas for EMC, it varied from 3.5 to 4.0 for banana cultivation. In the case of potato cultivation, the average family size varied from 3.8 to 4.5 for TMC and 3.6 to 5.2 for EMC. The majority of the sample farmers are found to be engaged in agriculture as main occupation, followed by agriculture related activities.

The average age of the sample farmers is found to be from 45.0 years to 61.0 years for TMC, and for EMC, it is 46.0 years to 52.5 years. The average age of head of household in potato cultivation is found to be 45.67 years to 59.0 years for TMC, but it is 30.67 years to 47.33 years for EMC. It is noted from the analysis that majority of sample respondents belonged 30-60 years and it implies that productive age group engaged in farm activities.

### 4.3 Methods of Cultivation and Modern Farm Practices

The adoption of modern techniques in agriculture has been given the highest priority by the Union and State Governments of India. This has changed the nature of agriculture sector with effective and more production. Whenever, adopting a new method of cultivation, particularly in banana and potato crop, farmers expect higher returns; otherwise, they do not adopt the new farming operation.

Table 4.3: Modern Practices and Methods of Cultivation of Selected Households

Particulars	Banana Crop		Potato Crop	
	TMC	EMC	TMC	EMC
Average Area under Crop (Ha.)	8.75	7.25	6.53	7.33
Fertilizers used				
a) Percent of Farmers to total	100.0	100.0	100.0	100.0
b) Per Ha Fertilizers use (Qtls.)	138.6	144.0	533.0	556.0
Organic / No. Fertilizers Use				
a) Percent of Farmers to total	68.0	53.0	78.0	60.0
Irrigation use				
a) Percent of Farmers to total	92.0	90.0	98.0	90.0
b) No. of Irrigation /Ha.	1.77	1.65	1.8	1.91
c) Sprinkler Percent of farmers to total	-	-	-	-
d) Drip Percent of farmers to total	-	-	-	-

Source: Field Survey Data

Nowadays, the farmers use modern machinery and advanced technology for many agricultural sector. The modern practices and methods of cultivation followed by the sample respondents are presented in Table: 4.3

It is found in the study that all sample farmers were using the chemical fertilisers for banana and potato crops. The consumption of fertilisers for banana crop is estimated to be 138.6 kg/ha. and 144.0 kg/ha. for TMC and EMC respectively. In the case of potato crop, it was 533.0 kg/ha. and 556.0 kg/ha. for both the marketing channels. A majority of the sample farmers were using pump set which is a main source for irrigation purposes. It is found from the field study that banana crop cultivation depends on ground water and canal water source like Cauvery water sources; but for potato crop, cultivation depends on ground water and surface water.

The comparison of labour hiring and labour cost in the study area is presented in Table 4.4. When compared to the own and hired labour cost, hired labour cost for banana and potato cultivators are more than that of family labour. The percentage share of hired labour cost in total cost is 55.5 percent and 62.3 percent for TMC and EMC respectively for banana cultivators; 54.6 percent and 73.9 percent for potato cultivators. The total labour cost for banana cultivators is computed to be Rs. 46,792/- and Rs.45, 568/- for TMC and EMC respectively, whereas for potato cultivators, it is Rs.36, 349/- and Rs. 38,539/-. It may be noted that the banana cultivators spend more on labour cost than potato cultivators due to long gestation period taken for cultivation of banana crop (12 months) than potato crop (3 months).

Table 4.4: Comparison of Labour Hiring and Labour Cost

Characteristics	Banana Crop		Potato Crop	
	TMC	EMC	TMC	EMC
	Number of Labour Days/Ha			
Family Labour				
Male	20.0	22.9	15.7	6.8
Female	15.7	18.3	10.4	6.1
Animal Labour	-	-	-	-
Machine	-	-	-	-
Total Family Labour	35.8	41.0	26.0	12.9
Percent to Total Labour	41.8	48.9	56.4	42.6
Hired Labour				
Male	28.0	25.7	11.99	10.7
Female	22.0	17.2	8.15	6.6
Animal Labour	-	-	-	-
Machine	64.0	4.7	2.4	8.5
Total Family Labour	50.0	42.8	20.1	17.3
Percent to Total Labour	58.2	51.0	43.6	57.4
Total Labour				
Male	47.8	48.5	27.7	17.5
Female	37.7	35.3	18.5	12.7
Animal Labour	-	-	-	-
Machine	64.0	4.7	2.4	8.5
Total Family Labour	85.5	83.8	46.2	30.2
	Cost of Labour			
Family Labour				
Male	14155.0	12266.0	11927.3	6338.9
Female	6654.0	4900.0	4573.0	3733.2
Animal Labour	-	-	-	-
Machine	-	-	-	-
Total Family Labour	20809.0	17166.0	16500.3	10072.1
Percent to Total Labour	44.5	37.7	45.4	26.1
Hired Labour				
Male	15445.0	15801.0	8854.3	11099.3
Female	5171.0	6501.2	3657.9	4600.5
Animal Labour	-	-	-	-
Machine	5367.0	6100.0	7337.0	12766.7
Total Hired Labour	20616.0	22302.2	12512.2	15699.8
Percent to Total Labour	55.5	62.3	54.6	73.9
Total Labour				
Male	29600.0	28067.0	20781.5	17438.2
Female	11825.0	11401.2	8230.9	8333.7
Animal Labour	-	-	-	-
Machine	5367.0	6100.0	7337.0	12766.7
Total Labour	46792.0	45568.2	36349.4	38538.6

Source: Field Survey Data

### 4.3.1 Cost of Cultivation of Bananas and Potatoes

The cost of cultivation is one of the most important factors in production and cost analysis. The incurring cost of agriculture reduces profit margin and vice versa. In recent years, the cost of cultivation has increased to an unprecedented extent in our country. Various costs are incurred in the cultivation of banana and potato crops such as labour cost, seeds, fertilizers, pesticides and machinery. The breakup of various costs in the total marketing costs of the selected crops (banana and potato) are transport, loading/unloading, market fee and commission.

Table 4.5: Cost of Cultivation of Bananas and Potatoes (Rs/Ha.)

Particulars	Trichirapalli		Nilgiris	
	TMC	EMC	TMC	EMC
Hired Labour: Male	15445.0	15801.0	8854.3	11099.3
Female	5171.0	6501.2	3657.9	4600.5
Animal	-	-	-	-
Machine	5367.0	6100.0	7337.0	12766.7
Total	25983.0	28402.2	19849.2	28466.5
Maintenance Expenses Owned Animal	1000.0	1200.0	1500.0	1300.0
Machinery	5367.0	6100.0	7337.0	12766.5
Total	6367.0	7300.0	8837.0	14066.5
Cost of Material Input: Seeds				
Home Grown	1020.0	1218.2	7945.6	3753.0
Purchased	3230.2	2711.4	19453.0	14118.5
Total	4250.2	3929.6	27398.6	17871.5
Fertilizers NPK	5069.0	5273.63	2909.52	5034.92
Manure: Owned	1250.0	1460.0	1750.0	1950.0
Purchased	4904.4	3445.3	4217.3	8164.7
Total	6154.4	4905.3	5967.3	10114.7
Pesticides	2700.6	1900.5	1838.1	2300.6
Irrigation	1748.4	1853.2	-	-
Micro Nutrients	6354.8	2798.5	-	-
Paid Out Cost: Family Labour				
Male	14155.0	12266.0	11927.3	6338.9
Female	6654.0	4900.0	4573.0	3733.2
Animal Labour	-	-	-	-
Machine	5367.0	6100.0	-	-
Total	26176.0	23266.0	16500.3	10072.1
Total Cost of Cultivation	84803.4	79629.0	83300.0	87926.8

Source: Field Survey Data

The cost of cultivation of bananas and potatoes crops is presented in Table 4.5. The total cost of cultivation per hectare incurred by banana cultivators works out to be Rs.84, 803 and Rs.79, 629 for TMC and EMC, respectively, whereas, for potato crop, it works out to Rs.83,300 and Rs. 87,927 respectively. It is found from the study that banana cultivators have spent more on hired labour, which accounts for 30.64 percent and 35.67 percent for TMC and EMC respectively. The paid out cost is 30.9 percent (TMC) and 29.2 percent (EMC) for banana crop and is 26.1 percent and 14.8 percent for potato crop. It is observed that the potato cultivators incur high cost of cultivation.

Table 4.6: Inputs Used for Crop Cultivation

Input Uses	Banana Crop		Potato Crop	
	TMC	EMC	TMC	EMC
Chemical Fertilizers (Kg.)	138.7	144.0	533.0	556.0
Organic Fertilizers (Kg.)	147.0	149.0	125.5	147.0
Percent of using composted fertilizers	-	-	-	-
Organic Pesticide (L)	3.9	3.3	3.9	3.5
Percent of Farm certified as organic	85.0	88.0	74.0	71.0
Machinery used	219.0	187.0	592.0	587.0
Percent of irrigated area	70.7	66.2	71.9	76.3
Seed (Kg.)	225.5	252.1	287.4	236.0
Sources (Percent of total)	92.0	90.0	98.0	90.0
Home Grown (Percent)	-	-	-	-
Purchased (Percent)	100.0	100.0	100.0	100.0
Home Grown and Purchased (Percent)	100.0	100.0	100.0	100.0
Average Area Cultivated (Ha.)	7.1	2.9	8.2	11.5
Total Production	24500.0	6670.0	14593.0	5760.0

Source: Field Survey Data

Table 4.6 gives details of the inputs used for banana and potato cultivation. Fertilizer is one of the important inputs in the cultivation of banana and potato crops. Potato growing farmers were using more fertilizers i.e., 533 kg/ha. and 556 kg/ha. for TMC and EMC respectively, whereas, it is 139 kg/ha. and 144 kg/ha for banana crop. It implies that potato growing farmers use more fertilizers than that of banana crop cultivators. The total production of banana crop of 50 farmers is worked out to 24,500 quintals and of 15 sample farmers 6,670 quintals for TMC and EMC respectively. But for potato crop, it worked out to 14,593 quintals and 5,760 quintals.

Table 4.7: Details of Production of Banana and Potato Crop

Particulars	Banana		Potato	
	TMC	EMC	TMC	EMC
Main Product (Qt)	24500.0	6670.0	14593.0	5760.0
By Product (Qt)	1271.0	355.0	-	-
Productivity (Qt/Ha)	173.5	165.9	89.1	82.5

Source: Field Survey Data

Details of productions of banana and potato crop in the study area are given in Table 4.7. It is found that the total production for banana crop worked out to 24,500 quintal for TMC and 6,670 quintal for EMC whereas, production of potato crop was 14,593 quintal and 5,760 quintal for both the channels. The overall productivity of banana crop worked out to be 173.51 qt/ha and 165.92 qt/ha for TMC and EMC respectively. But for the potato crop, it is found to be 89.09 qt/ha and 82.53 qt/ha for the respective marketing channels. The banana cultivators in the study area are not enthusiastic about emerging marketing channels due to various reasons. Emerging marketing channels are very particular the quality of the product; top priority will be given for high quality product only, otherwise, the product will be rejected by EMC in the farm field itself. On the other hand, in the TMC, traders also accepted the moderate and high and low quality products.

Table 4.8: Cost of Production and Net Returns for Banana and Potato Crops

Items	Banana Crop		Potato Crop	
	TMC	EMC	TMC	EMC
Per Ha Cost of Cultivation (including family labour) (Rs.)	84803	79628	83300	87927
Gross Return /Output (Rs./Ha)	259780	285970	142675	138771
Cost of Production (Rs./Qtls) including family labor	503.9	474.0	761.2	919.0
Cost of Production (Rs per quintal) considering only paid out cost	62.4	95.8	66.5	97.05
Productivity (Qt/Ha)	173.5	165.9	89.1	82.5
Per Quintal Price realized by Farmers (Rs/Qt)	1497.2	1120.8	1320	1187
Per Ha Net Profits(including family labour)	174977	206342	59375	50844
Per Ha Net Profits considering paid out cost	51074.5	32190	52315	68413
Per Quintal Net Profit (Rs/Ha) considering only paid out cost	294.36	194.01	587.22	821.9
Per Quintal Net Profit (Rs/Ha) including family labour	356.8	200.1	653.7	710.4

Source: Field Survey Data

Generally, the cost of cultivation of banana and potato crop covers cost of seeds, manure, chemical fertilizers, insecticides and pesticides, irrigation charges, machine charge and labour cost. The estimated yield gains, costs of various inputs and cost-return profile for banana and potato cultivation in the study area are presented in Table: 4.8.

The farmers growing banana realised a gross return of Rs. 259780/- and Rs. 285970/- per ha, for TMC and EMC respectively, whereas it is Rs. 142675/- and Rs.138771/- per ha. for potato cultivators. It is found that the EMC cultivators are enjoying higher gross return (9.16 percent) than TMC banana cultivators. But in the case of potato crop the potato cultivators under TMC are enjoying higher gross return (2.73 percent) than that of potato cultivators under EMC. Further, the table shows that the average yield of banana is 173.5 quintal/ha, and 166 quintal/ha for TMC and EMC marketing channels respectively, whereas that of potato crop is 89.1 quintal/ha and 82.5 quintal/ha respectively.

The average cost of cultivation for banana crop worked out to Rs. 84,803 per ha, and Rs.79,628 per ha for TMC and EMC respectively. But for the potato cultivation, it worked out to Rs.83, 300 and Rs.87, 927 per ha. Among the banana growers, TMC farmers spend of Rs. 5,175 (6.10 percent) more than EMC farmers. It is noted that the TMC farmers spend more on banana crop. Within potato growing farmers, EMC farmers spend in cultivation, that is Rs.4, 627 (5.26 percent) than TMC. This implies that the cost of cultivation is high for EMC cultivators.

#### **4.4 Price Spread of Banana in Traditional and Emerging Marketing Channels**

In agriculture markets, the price of commodities are affected by the location of markets, characteristics of the hinterland, nature of demand, supply of goods, durability of commodities, accessibility and transportation cost. The average price of individual crop varies from market to market due to location of market, nature of supply and demand, road connectivity from cultivation area, characteristics of the market hinterland, transportation cost, seasonal effects, and the socio-economic condition of market

participants. Apart from these, there are many more socio-spatial factors, which affect the price structure of these agricultural crops in the rural markets.

Table 4.9: Price Spread and Marketing Costs for Banana (2009)

No	Price Spread	TMC	EMC
I	Price Received by Farmers	1497.2	1120.8
II	Total Marketing Costs of Farmer		
	a) Transport to APMC	11.6	3.1
	b) Loading and Unloading	2.6	1.0
	c) Weighing and other related expenses	-	0.4
	d) Commission	17.9	-
	e) Standard deduction considered as waste	1.1	0.34
	Net Price received by Farmer	1463.9	1115.9
III	Marketing Costs and Margins of Wholesaler	33.3	-
	a) Market fee	-	-
	b) Gunny bags	-	-
	c) Switching gunny bag	-	-
	d) Hamali	-	-
	e) Waste during transport	60.0	54.0
	f) Transport to terminal market	-	-
	g) Wholesaler's margin	36.0	-
	Purchase price of wholesaler plus marketing costs and margins	-	-
IV	Marketing Costs and Margins of Retailer	19.0	-
	a) Hamali from point of purchase to tempo	-	-
	b) Transport tot retail outlet	96.0	-
	c) Miscellaneous expenses as corporation, watchman for unsold stock, supermarket overhead	20.0	25.0
	d) Wastage	60.0	48.0
	e) Retailer 's margin	1.4	-
	Sale Price of Retailer	18.0	-
V	Share of Farmer (percent) in Retailer's price	42.0	-
VI	Marketing Cost as percent of Retailer's price	8.0	-
VII	Marketing margin as percent of Retailer's price	30.0	-
VIII	Modified measure of Marketing Efficiency	-	-

Source: Field Survey Data

Price spread and marketing costs for banana crop during 2009 are presented in Table 4.9. The market prices received by banana cultivators are found to be Rs. 1197/- and Rs. 1120/- for TMC and EMC, respectively. Within the marketing cost, commission is the dominant cost incurred by the sample farmers, which is Rs.18 per quintal for TMC; transport cost is Rs.12 per quintal, whereas it is Rs. 3.12 for EMC. It is observed that

among the sample farmers those in the TMC incur more marketing costs than the farmers in the EMC. There is no commission fees in the EMC. The average net price received by banana crop farmers is Rs.1164/- for TMC and Rs.1116/- for EMC. It is observed that the majority of the sample farmers prefer only TMC system.

#### **4.4.1 Price Spread of Potato in Traditional and Emerging Marketing Channels**

The marketing efficiency is examined in terms of the price difference (consumer price less price received by producer seller), marketing cost, and margin (price difference less marketing cost) for banana and potato crops. There are variations in prices and margin in absolute terms for the same commodity in different markets. The marketing costs and margins have been expressed as percentage to the price difference.

Price spread and marketing costs for potato crop cultivators during 2009 are given in Table 4.10. The average market price received by potato cultivators worked out to Rs.1320 and Rs.1187 per quintal for TMC and EMC, respectively. It is observed that the majority of the TMC farmers have spent more on marketing costs than those in the EMC. The commission is one of the important costs is in TMC, while there is no commission charge in EMC. The transportation costs are Rs.51 and Rs.46 for TMC and EMC, respectively.

Table 4.10: Price Spread and Marketing Costs for Potato Crop (2009)

Price Spread	TMC	EMC
I Price Received by Farmers	1120.2	1186.6
II Total Marketing Costs of Farmer	58.5	7.1
a) Transport to APMC	9.1	6.4
b) Loading and Unloading	4.6	-
c) Weighing and other related expenses	-	-
d) Commission	30.6	-
e) Standard deduction considered as waste	1.3	0.65
Net Price received by Farmer	1016.0	1172.5
III Marketing Costs and Margins of Wholesaler		
a) Market fee	-	-
b) Gunny bags	-	-
c) Switching gunny bag	-	-
d) Hamali	-	-
e) Waste during transport	51.0	46.0
f) Transport to terminal market	-	-
g) Wholesaler's margin	20.0	-
Purchase price of wholesaler plus marketing costs and margins	-	-
IV Marketing Costs and Margins of Retailer	8.4	-
a) Hamali from point of purchase to tempo	-	-
b) Transport tot retail outlet	0.45	-
c) Miscellaneous expenses as corporation, watchman for unsold stock, supermarket overhead	-	-
d) Wastage	42.0	46.0
e) Retailer 's margin	-	-
Sale Price of Retailer	-	-
V Share of Farmer (percent) in Retailer's price	30.0	-
VI Marketing Cost as percent of Retailer's price	6.0	-
VII Marketing margin as percent of Retailer's price	25.0	-
VIII Modified measure of Marketing Efficiency	-	-

Source: Field Survey Data

#### 4.5 Benefit-Cost Ratio: Market Efficiency

The market efficiency is a collective action of the traders, farmers, wholesalers, retailers and consumers in the marketing system. Good marketing system leads to the economic growth of country. The Benefit-Cost Ratio (BCR) is one of the factors which determines in the marketing system. The Benefit-Cost Ratio (BCR) for banana and potato crops cultivators in the study area is presented in Table 4.11.

Table 4.11: Benefit Cost Ratio for Banana and Potato Crops

Particulars	TMC	EMC	TMC	EMC
	(Cost of Production includes paid out costs)	(Cost of Production includes paid out costs)	Cost of production includes family costs	Cost of production includes family costs
BCR Banana	5.09	5.78	2.97	3.00
BCR Potato	2.25	1.44	1.73	1.29

Source: Field Survey Data

BC ratio 2.97 percent (includes cost of production with family costs) for banana cultivators under TMC system is less than the BC ration of 3.0 percent for EMC system, whereas, for potato cultivators, it is found to be 1.73 percent and 1.29 percent respectively for TMC and EMC. It implies that the BC ratio for banana cultivators is higher than that of potato cultivators. The BC ratio for (cost of production with paid out costs) banana cultivators is 5.78 percent and 5.09 percent for EMC and TMC, respectively. But for the potato cultivators, it is 2.25 percent and 1.44 percent respectively for those in the same category that costs of production with paid out costs. It is found from the table that the banana cultivators benefit more the potato cultivators.

#### 4.6 Marketing Channels Preferences

Consumers prefer various types of markets in the society. There are some factors involved in preferring particular marketing channels. Factors like habit of the seller, influence of friends, assured sales, fair price, low cost of marketing and less physical loss to the farmers influence the decisions of the producer-seller. Table 4.12 presents the reasons for preferring particular marketing channel in the study area. Among the different factors, habit of the sellers is the main determining factor. About 26 percent of TMC, and 27 percent of EMC banana cultivators had chosen due to the habit and 20 percent of cultivators had chosen the marketing channels due to the influence of their friends. Among potato cultivators, 24 percent have chosen TMC and 27 percent have chosen EMC because of assured sales.

Table 4.12: Reasons for Preferring Particular Marketing Channels

Particulars	Banana Crop		Potato Crop	
	TMC	EMC	TMC	EMC
Habit	26.0	26.7	18.0	13.3
Influence of friends	20.0	20.0	12.0	13.3
Assured sales	26.0	6.7	24.0	26.7
Higher/ Fair price	24.0	20.0	18.0	13.3
Low cost of Marketing	2.0	13.3	18.0	20.0
Less Physical Loss	2.0	13.3	10.0	13.3
Others	-	-	-	-

Source: Field Survey Data

#### 4.6.1 Post-Harvest Losses

Post-harvest loss is an important problem which not only affects agriculture sector, but also affects associated sectors. Post-harvest losses occur in India and Tamil Nadu due to improper post-harvest management system. In India, nearly 10-30 percent of the agricultural commodities are getting wasted due to post-harvest loss in every year.

Table 4.13: Reasons for Post-Harvest Losses (in Percent)

Reasons	Banana Crop		Potato Crop	
	TMC	EMC	TMC	EMC
Perishable nature of the commodity	76.0	73.0	66.0	73.0
Long distance to market	78.0	93.0	78.0	87.0
Long wait for better prices	70.0	87.0	80.0	73.0
Lack of proper storage	84.0	87.0	76.0	93.0

Source: Field Survey Data

The main reasons for post-harvest losses in the study are presented in Table 4.13. About 76 percent of TMC and 67 percent of EMC farmers reported that the post-harvest losses are the main worry for all banana cultivators. The post-harvest losses occur due to the perishable nature of the commodity, and lack storage facilities in the farm field.

About 78 percent and 93 percent of farmers cited that the long distance to market place is one of the important causes. A majority of sample farmers (70 percent and 87 percent) tell that as they waited for better prices, it resulted in huge losses. In the case of potato cultivators for both marketing channels, about 66 percent and 67 percent underlined perishable nature of the commodity and 76 percent 93 percent of them reported lack of proper storage facilities in the market as one of the major reasons for

post-harvest losses. Thus lack of storage facilities, long distance from farm field to market place and perishable nature of the commodity in the both the districts are the major problems faced by the sample framers during post-harvest period.

#### **4.6.2 Information regarding Price Available to Farmers**

Agricultural commodity prices play a vital role in the primary sector. They are influenced by domestic demand and supply factors which lead to changes in domestic price policy. The market imperfections lead to the price transmission and final consumer prices. Minimum Support Price policy has been a cornerstone of the agricultural price policy since 1965. The objective is to ensure remunerative prices to the growers for their produce with a view to encourage higher investment and production; evolve a balanced and integrated price structure in the context of overall needs of the economy while safeguarding the interest of consumers by making available supplies at reasonable prices. In recent years, farmers are known about the marketing price information very well. The main motive of the marketing price information is to attain higher (or) adequate price received for their agricultural commodities. Table 4.14 provides details pertaining to opinion about the market information in the study area.

46 percent and 80 percent of sample respondents of banana cultivators from TMC and EMC respectively reported that they received information by personal effort. 66 percent and 80 percent of potato cultivators in the sample who belonged TMC and EMC respectively reported that they received information by personal effort. Farmers in the neighbourhood also supply price information in both the market channels. A majority of the banana and potato cultivators for both TMC and EMC reported that they received price information at the time of sale alone. 80 percent of the potato cultivators for both marketing channels reported that they accepted the price prevailing in the market. In other words, they was price talks banana cultivators, in both TMC and EMC marketing channels reported that they received information regarding existing price in the market. It may that been observed a majority of the potato cultivators receive correct information regarding price than that of banana cultivators in both marketing channels.

Table 4.14: Details about Marketing Information (in percent)

Particulars	Banana Crop		Potato Crop	
	TMC	EMC	TMC	EMC
A. Source of Price Information				
1. Personal information	46.0	80.0	66.0	80.0
2. Speaking with other farmers	74.0	60.0	80.0	60.0
3. Speaking with Commission agent	76.0	13.0	82.0	13.0
4. Speaking with the E-couple agent	16.0	20.0	-	-
5. Any other	-	-	-	-
B. Time of Price information				
1. At the time of harvest/sale	10.0	60.0	54.0	27.0
2. At the time of sale	90.0	40.0	46.0	73.0
C. Price information from AGMARKET				
Yes	12.0	87.0	74.0	73.0
No	88.0	13.0	26.0	27.0
D. Differences in Price information				
1. Lower than expected	14.0	27.0	16.0	27.0
2. Similar to what is expected	78.0	67.0	72.0	73.0
3. Higher than expected	8.0	7.0	12.0	-
E. Time of Price Agreement				
1. At the time of sale	-	-	18.0	27.0
2. By previous agreement	-	-	82.0	73.0
F. Difference between agreed price and sale price				
1. Less	22.0	40.0	20.0	13.0
2. Same	70.0	53.0	80.0	80.0
3. A bit more	8.0	7.0	-	7.0
G. No. of times gone to the agent to get payment				
1. None	32.0	87.0	74.0	67.0
2. Various times	68.0	13.0	26.0	33.0
H. Merchant Fulfillment				
1. Bad record	30.0	-	12.0	-
2. Satisfactory record	46.0	-	74.0	-
3. Good record	24.0	-	14.0	-
I. Receipt for Sales				
1. Yes	84.0	-	86.0	-
2. No	16.0	-	14.0	-
J. Conflict on quality				
1. Yes	22.0	27.0	28.0	13.0
2. No	78.0	73.0	72.0	87.0
F. Conflict any other				
Because of Rain	73.0	-	46.0	-
Production rejected	27.0	-	48.0	-
K. How was it resolved				
By APMC/Company Person	8.0	13.0	28.0	27.0
L. Confidence in the merchant				
Low	26.0	-	28.0	-
High	74.0	-	72.0	-

Source: Field Survey Data

It is observed from the study that majority of the sample farmers received information relating to price structure. In practice, the farmers are not allowed to fix the price of their produce. The price is fixed by wholesale dealers or commission agents.

Among banana and potato cultivators, about 50 percent of banana cultivators in TMC expressed the view that commission agents, whole sale dealers and retailers were involved in price fixation. On the other hand, 40 percent of banana cultivators and 47 percent of potato cultivators in the EMC reported that self-help groups and retailers actively participated an price fixation. It is observed that a majority of the sample farmers in TMC a deal more with agents (like commission agents /wholesale dealers/retailers) than farmers in EMC in the study area.

A majority of the banana cultivators in Trichirapalli district sell their produce within the State as Trichirapalli is famous for banana cultivation. Therefore majority of them prefer to sell their produce in the market. Within the district the farmers prefer to sell their produce in Kattuputhur Co-operative Banana Market. A majority of the farmers in the study area used both TMC and EMC. On the other hand, a majority of potato cultivators in Niligris districts sell their agricultural produce within the district and in neighbouring States Kerala and Andhra Pradesh. A majority of the farmers sell their produce in the Metupalayam co-operative potato market federation, to other private agents and Kerala wholesale dealers.

#### **4.7 Access to Inputs from the Buyer**

In India, agricultural production mainly depends upon the utilization of the inputs such as fertilisers, pesticides and seeds and the cropping pattern. These inputs are basic requirements for agricultural sector. Increasing the productivity of the crops and vegetables depend upon the quality of the farm inputs. The effective distribution of these inputs play a vital role in productivity. Nowadays, the farmers face a number of problems in accessing the farm inputs due to poor distribution system. The timely availability of farm inputs is a necessary and essential condition for the welfare of the farming community.

Table 4.15: Access to Inputs from the Buyer (in percent)

Particulars	Banana Crop		Potato Crop	
	TMC	EMC	TMC	EMC
A. Received Input advance for the period				
1. Yes	58.0	73.0	38.0	87.0
2. No	42.0	27.0	62.0	13.0
B. Types of Inputs				
1. Seeds	3.4	-	-	-
2. Improved Seeds	3.4	-	-	-
3. Fertilizers	48.3	50.0	84.0	50.0
4. Pesticides	44.8	50.0	16.0	50.0
5. Knowledge on Crop Practices	-	-	-	-
6. Extension Support	-	-	-	-
C. Value of the Input (Rs./farmer)				
D. Reasons for procuring the inputs from the Buyer				
1. Easily available on Credit (interest)	58.0	40.0	74.0	40.0
2. Extension Service Support	42.0	60.0	26.0	60.0

Source: Field Survey Data

Access inputs by the sample farmers in the study area is given in Table.4.15. About 73 percent of banana cultivators and 87 percent of potato cultivators reported that they received inputs from buyers in EMC. On other hand, both the districts in TMC cultivators reported that they received minimum level of inputs than in EMC for banana and potato cultivation. A majority of the sample farmers reported that they utilised the money for purchase of fertilisers, pesticides and not for other purposes. Out of that, fertilisers and pesticides are one of the important components of inputs. 48.3 percent and 50.0 percent of banana cultivators received fertilisers from the buyers. 84.0 percent and 50.0 percent of potato cultivators from both the marketing channels borrowed money from buyers.

#### 4.8 Perception of Markets Infrastructure

The adequate and quality infrastructure in rural areas leads to increase in the productivity in agriculture. The development of rural infrastructure supports to expand the markets with greater access to the production. Well-developed infrastructure supports the expansion of the market economy. The estimation shows that 15 percent of lost crop produce is the result of poor roads and inappropriate storage facilities alone which badly affect the income of the farmers (World Bank 1997).

Table 4.16: Perception of the Market infrastructure (in percent)

Particulars	Banana Crop		Potato Crop	
	TMC	EMC	TMC	EMC
A. Condition of the road to market				
1. Bad	74.0	60.0	40.0	80.0
2. Average	22.0	34.0	40.0	13.0
3. Good	4.0	-	20.0	7.0
B. Proximity of market				
1. Within the village	32.0	-	6.0	13.0
2. Within 10 Kms	24.0	27.0	4.0	7.0
3. Between 10 to 25 Kms	26.0	40.0	54.0	73.0
4. Between 25 to 50 Kms	16.0	23.0	36.0	7.0
5. More than 50Kms	2.0	10.0	-	-
C. Godown facilities				
1. Not Available	82.0	80.0	42.0	73.0
2. Bad	6.0	20.0	32.0	27.0
3. Average	6.0	-	8.0	-
4. Good	6.0	-	18.0	-
D. Cold storage				
1. Not Available	36.0	67.0	44.0	73.0
2. Bad	20.0	13.0	38.0	27.0
3. Average	44.0	20.0	12.0	-
4. Good	-	-	6.0	-
E. Auction arrangements				
1. Bad	86.0	60.0	22.0	67.0
2. Average	8.0	40.0	56.0	33.0
3. Good	6.0	-	22.0	-
F. Supervision of sale				
1. Bad	74.0	80.0	32.0	20.0
2. Average	16.0	13.0	56.0	73.0
3. Good	10.0	7.0	12.0	7.0
G. Loading facilities				
1. Bad	60.0	53.0	24.0	73.0
2. Average	30.0	40.0	66.0	20.0
3. Good	10.0	7.0	10.0	7.0
H. Sorting facilities				
1. Bad	62.0	73.0	38.0	80.0
2. Average	20.0	20.0	56.0	13.0
3. Good	18.0	7.0	6.0	7.0
I. Weighing facilities				
1. Bad	34.0	73.0	48.0	53.0
2. Average	48.0	20.0	30.0	33.0
3. Good	18.0	7.0	22.0	14.0
J. Packing facilities				
1. Bad	56.0	20.0	18.0	67.0
2. Average	24.0	53.0	78.0	20.0
3. Good	20.0	27.0	4.0	13.0
K. Telephone facilities				
1. Bad	28.0	27.0	30.0	7.0
2. Average	32.0	-	10.0	-

3. Good	10.0	-	-	-
4. Not Available	30.0	73.0	60.0	93.0
L. Banking facilities				
1. Bad	14.0	26.0	60.0	20.0
2. Average	30.0	-	4.0	-
3. Good	16.0	-	4.0	-
4. Not Available	40.0	74.0	32.0	80.0
M. Computer facilities				
1. Bad	40.0	20.0	30.0	15.0
2. Average	12.0	-	12.0	-
3. Good	10.0	-	6.0	-
4. Not Available	38.0	80.0	52.0	85.0
N. Internet facilities				
1. Bad	42.0	25.0	18.0	13.0
2. Average	12.0	-	10.0	-
3. Good	-	-	6.0	-
4. Not Available	46.0	75.0	66.0	87.0

Source: Field Survey Data

Easier access to markets allows an expansion of the production of perishable and transport-cost-intensive products. It can also lead to a conversion of latent demand into effective commercial demand. These effects of infrastructure highlight the process of commercialization in agriculture and rural sector (Jaffee and Morton 1995).

The perception of the sample respondents regarding the market infrastructure in the study area is provided in Table 4.16. About 74 percent and 80 percent of banana cultivators and 40 and 80 percent of potato cultivators in TMC and EMC for both crops expressed the view that the conditions of the roads are very bad. A majority of the sample farmers in Trichirapalli district expressed the view that they sell their produce within a distance of 10 to 25 kms. Trichirapalli market is one of the biggest markets for banana in India.

Almost all the farmers travel to Trichirapalli market to sell their banana produce. On the other hand, for the potato crop, majority of them travel 10 to 50 kms for selling their produce. Especially, they travel from hilly areas to plains. A majority of the farmers reported that they sell their produce in Mettupalayam Co-operative market, and to private agencies in Nilgris district of Tamil Nadu. The Mettupalayam Co-operative market for potato crop is very famous in Southern India. Therefore, majority of the sample farmers

used to travel from Nilgris to Mettupalaym for selling their produce. It has been observed that a majority of the sample farmers are travel long distance 25 to 50 KMs to sell their farm produce (potatoes) of Nilgris district than the farmers of Trichirapalli district who travel 10 to 25 KMs to sell bananas.

82 percent and 80 percent of the banana cultivators and 42 percent and 73 percent of the potato cultivators of both the channels (TMC and EMC) reported that there is lack of godown facilities in the market in the both the study areas. A majority of them reported that they need adequate godowns facilities to preserve their farm produce without loss.

In the case of cold storage facilities, farmers reported that they do not have any adequate cold storage facilities in the market. 36 percent and 67 percent of banana cultivators and 44 percent and 73 percent of potato cultivators expressed that cold storage facilities were not available in the market. Remaining 20 percent and 13 percent of banana cultivators, 38 percent and 27 percent of potato cultivators tell that the available cold storage facilities were in bad condition.

The availability of telecommunication technology like telephone, internet and computer facilities is very low in the market. A large number of sample farmers in the study areas are found to be illiterate and only some of them completed high school level. Therefore, they have not adopted modern technology.

#### **4.8.1 Perceptions of the Sample Farmers on other Market Agents and the Price in the Market**

In this section, we shall discuss about the perception of the sample farmers in the study area. A majority of the farmers cultivate banana and potato crop in that area. The farmers face a number of problems in selling their produce. Generally, farmers are getting minimum level of income during the transaction of produce, whereas, middlemen and whole sale dealers enjoy huge profit within the short duration.

Table 4.17: Perception of the Farmers on Other Market Intermediaries, Price Spread in Agricultural Marketing (in percent)

Particulars	Banana		Potato	
	TMC	EMC	TMC	EMC
1. After the buyer, who are the agents and how many channels are there between you and the retail market				
A. Agents				
1. Don't know	-	3.0	6.0	7.0
2. Retailer	-	27.0	6.0	10.0
3. Commission Agent/Wholesaler/Retailer	50.0	-	82.0	7.0
4. Commission Agent/Wholesaler/ Merchant Wholesaler/Retailer	50.0	-	6.0	-
5. SHG/Retailer	-	70.0	-	77.0
6. Processing Unit	-	-	-	-
B. How many channels in between				
1. 1 Channels	6.0	76.0	6.0	73.0
1. 2 Channels	6.0	-	4.0	-
2. 3-4 Channels	88.0	17.0	80.0	7.0
3. Don't know	-	10.0	10.0	20.0
2. Which are the wholesale markets in the Country where crop is sold				
1. Within the State	6.0	-	42.0	40.0
2. Within the District	74.0	93.0	38.0	33.0
3. Between the Districts	20.0	7.0	20.0	27.0
3. Did you know the price at which produce is sold in the retail market				
1. Aware	66.0	80.0	70.0	93.0
2. Unaware	34.0	20.0	30.0	7.0
4. What is your opinion of margin that is realized				
1. Not high	54.0	58.0	32.0	7.0
2. High	46.0	42.0	48.0	20.0
3. Very high	-	-	7.0	-
4. Do not know	-	-	-	73.0
5. In future will you sell the produce to this agent again				
1. Yes	24.0	40.0	40.0	7.0
2. No	28.0	53.0	30.0	20.0
3. Uncertain	32.0	7.0	24.0	-
4. If give higher price	16.0	-	-	73.0
6. Any other option for selling the produce				
1. Yes	50.0	-	60.0	100.0
2. No	50.0	-	40.0	-
If yes, what are the options for selling				
1. City Trader	4.8	13.0	18.0	13.0
2. Export	19.0	-	34.0	-
3. Other Market/State	76.2	60.0	-	7.0
4. Government if given higher price	-	27.0	48.0	80.0

Source: Field Survey Data

The perception of the farmers on other market intermediaries, price spread in agricultural marketing in the study area is shown in Table 4.17. About 50 percent of banana cultivators and 82 percent of potato cultivators are found to be dependent upon the commission agents among TMC farmers. About 88 percent and 80 percent of the farmers reported that nearly three to four kinds of agents are involved in the buying activities of farm produce, whereas in EMC, 70 percent and 77 percent of the respective farmers reported that they have dealings with SHGs or make direct sale. 76 percent and 73 percent of the corresponding channels are directly selling their produce without any intermediaries in the market.

74 percent and 93 percent of the farmers of TMC and EMC respectively sell their banana production within the district. A majority of them sell their agriculture produce in the Trichy open market, Kattuputhur Banana Crop Co-operative Society, whereas, in the cases potato crop, a majority of the farmers sell their produce in the Mettupalayam Potato Co-operative Society. The remaining farmers sell their produce to Kerala wholesalers and to other State sellers.

The perception of the farmer on constraints in agricultural marketing in the study is shown in Table 4.18. Generally, the farmers desire to get maximum price for their agriculture produce in the market. But in reality, the farmers could not get better price due to involvement of intermediaries in the market. In Tamil Nadu, majority of the farmers have been exploited by the commission agents and intermediaries. It is found in the study area, 100 percent and 80 percent of banana crop cultivators TMC and EMC channels respectively and 74 percent and 80.0 percent of potato cultivators of both channels agreed and reported that the government should help them by fixing better market price.

Table 4.18: Perception of the Farmer on Constraints in Agricultural Marketing  
(in percent)

Particulars	Banana		Potato	
	TMC	EMC	TMC	EMC
1. What are enabling conditions and support that Government should do so that farmers can get a better price for the product				
1 Need Export Facility	74.0	60.0	54.0	60.0
2 Cold Storage and Higher MSP	88.0	80.0	60.0	80.0
3 Need Subsidy	80.0	80.0	60.0	67.0
4 Market and other charges should be reduced	86.0	85.0	72.0	53.3
5 Increase MSP	100.0	80.0	74.0	80.0
6 Reduce Commission Agents	100.0	20.0	74.0	80.0
7 Others	-	-	-	-
2. What are the constraints faced by the farmers in EMC as compared to TMC				
1 No constraints faced	14.0	-	34.0	-
2 Buys only selected quality produce	48.0	40.0	26.0	40.0
3 Buys only in small quality	22.0	40.0	14.0	40.0
4 Delay in payments	16.0	-	26.0	20.0
5 EMC is not strong as TMC	-	20.0	-	-
3. How do you think the constraints in the emerging marketing channel can be over come				
1 Production of quality product	8.0	20.0	26.0	20.0
2 Purchase entire product	44.0	20.0	14.0	20.0
3 Need attract farmers by providing facilities	40.0	40.0	10.0	40.0
4 Government should encourage the farmer for EMC	8.0	20.0	50.0	20.0
4. Suggestions to ensure that farmers get higher price for the produce and margins of the intermediaries are reduced				
1 Reduce intermediaries in the market	56.0	20.0	6.0	20.0
2 Provide good transport to market	10.0	26.7	14.0	26.7
3 Provisions for assured sale of the produced	18.0	13.3	10.0	13.3
4 Government should provide cold storage	10.0	13.3	24.0	13.3
5 Reduce charges	6.0	-	28.0	20.0
6 Provide credit facilities	-	27.0	10.0	6.7
7 Export marketing network for the surplus produced	-	-	8.0	-
8 Establishment of more food-processing units	-	-	-	-

Source: Field Survey Data

The farmers in the study area suffer from a number of problems; cold storage facilities and interference of middlemen and low market price are some of the major problems. About 100 percent and 74 percent of TMC farmers of banana and potato crops reported that the government should stop the interference of commission agents in the market. About 88 percent and 80 percent of banana cultivators in both the marketing channels and 60 percent and 80 percent of potato cultivators in both the marketing channels reported that the government should create cold storage facilities in the market.

Further, the farmers wanted the government to increase the minimum support price for their produce and curtail the involvement of commission agent or middlemen in the marketing.

About 48 percent and 40 percent of banana cultivators in TMC and EMC and 26 percent and that only 40 percent of potato cultivators in both the channels reported quality product is accepted in the market. A few farmers (20 percent) expressed the view that EMC is not as strong as TMC.

In popularizing of EMC in the market, the government can faced a number of problems. We cannot all of a sudden change the farmer's regular practice in the market. Therefore, the farmers are attracted by the incentives like subsidies; physical and financial support is very essential for the improvement of the EMC in the society. About 40 percent of banana cultivators reported that farmers can be attracted to EMC for providing facilities.

About 56 percent and 20 percent of banana cultivators for TMC and EMC reported that they are willing to reduce the commission agents in the market. This indicates that the commission agents give more hurdles to the farmers and farmers are aware that they are being exploited by commission agents. Therefore, the government should take more steps to reduce commission agent. About 24 percent and 13.3 percent reported that they are provided with cold facilities for potato crop. It is noted that the majority of the farmers in the study area could not get adequate cold and storage facilities.

## **Chapter V**

### **Summary, Conclusions and Policy Implications**

#### **5.1 Introduction**

The present study has dealt with the impact of Emerging Marketing Channels (EMC) in Agriculture. Among other things, it has studied how far EMC benefits the producer-sellers and maintaining costs and margins of banana and potato crops in both traditional and emerging marketing channels in Tamil Nadu with special reference to Trichirapalli and Nilgiris districts.

The marketing of agricultural produce plays very crucial role in economic development. The marketing system is a link between farmers and consumers. It creates a balance between demand and supply of agricultural produce. Especially agriculture marketing system is one of the challenges for the government as well as farmers in India. The Union and State Governments have enacted a number of acts to improve the livelihood of farmers. The role of the commission agents, middlemen and intermediaries in the agriculture marketing is formidable one. About 80 percent of the agriculture marketing is controlled by the commission agents, middlemen and intermediaries. Only the remaining 20 percent is dealt with by cooperative and government institutions.

The farmers earn only the marginal income from the agriculture produce even though, they work hard in the farm to produce agriculture commodities. On the other hand, the commission agents earn huge profits in the agriculture market by spreading less time and earning. The commission agents play a dominant role in fixing the price of the agriculture produce in the market.

The research study examined the impact of emerging marketing system on banana and potato crops and compared it with traditional and emerging marketing system. The price structure of banana and potato crops in traditional and emerging marketing system (TMC and EMC) of Trichirapalli and Nilgiris districts of Tamil Nadu has been studied.

The farmers voluntarily dispose of their agricultural produce due to perishable nature of the commodity, lack of infrastructural and cold storage facilities and because of

the immediate need money for the farmers. A majority of the farmers preferred the traditional marketing channels it is located within the village and also it accepts low quality produce. But emerging markets preferred only quality agricultural produce and rejected the low quality produce. There is disparity between Traditional Marketing and Emerging Marketing channels.

## **5.2 Main Findings**

The GSDP of Tamil Nadu at current prices registered an annual average growth of 9.86 percent (2004-05 to 2011-12). At constant (2004-05) prices, it registered an annual average growth of 9.86 percent.

The share of GDDP of Trichirapalli in GSDP of Tamil Nadu at current prices increased from 4.06 percent in 2004-05 to 4.45 percent in 2010-11, whereas in Nilgiris, it declined from 1.13 percent to 0.97 percent. At constant prices, in Trichirapalli, it increased from 4.06 percent to 4.60 percent and it witnessed increase of 0.54 percent. On the contrary, for Nilgiris it declined from 1.13 percent to 0.97 percent.

The share of primary sector GDDP in Nilgiris declined from 23.0 percent in 2004-05 to 21.81 percent in 2010-11, whereas in Trichirapalli, it increased to 9.79 percent in 2010-11 from 9.38 percent in 2004-05. The service sector in Trichirapalli witnessed slight decline from 68.18 percent to 66.46 percent, whereas in Nilgiris, it increased from 55.27 percent to 62.80 percent.

During 2011-12, the share of GAI (Gross Irrigated Area) in Tamil Nadu was 35.19 lakhs ha. Trichirapalli occupied the highest share (3.09 percent) than that of Nilgiris (0.01 percent). The Net Area Irrigated (NAI) was 29.64 lakh ha, whereas in Trichirapalli, it was 3.33 percent which is higher than that of Nilgiris (0.01 percent). The irrigation intensity was 1.19 percent, but between the two districts of Trichirapalli and Nilgiris, Trichirapalli was having high intensity of 1.10 percent than that of Nilgiris (1.0 percent).

During 2009-10, foodgrains occupied the highest share of 54.46 percent of area in Tamil Nadu. The total area under non-food crops of Nilgiris district was 84.66 percent. But the area under foodgrains was the lowest at 15.34 percent. Potato is a dominant crop in the area and it occupied 1.51 percent of the area, followed by banana (1.38 percent).

The area under total food crops in Trichirapalli accounted for 73.55 percent. But in Nilgiris, it was only 15.34 percent. Only 26.45 percent was under non-food crops in Trichirapalli, but for Nilgiris, it was 84.66 percent. It shows that that Nilgiris with mountainous terrain with slopes is not suitable for cultivation of food crops, especially, paddy and Trichirapalli is in the plains with irrigation facilities.

The size of farm holdings in Trichirapalli district is higher than in Nilgiris district in all the farm sizes except for large farms. In Trichirapalli, marginal farms accounted for 5.23 percent of the area of landholdings, whereas in Nilgiris, large farms accounted for 17.76 percent.

In Tamil Nadu, the production of potatoes declined from 1, 33,520 tonnes in 1985-86 to 77,791 tonnes in 2011-12. In Nilgiris, it declined from 99,820 tonnes to 35,229 tonnes. It declined by 40.2 percent and 35.3 percent in Tamil Nadu and in Nilgiris respectively over the period. The productivity of potatoes in Nilgiris district increased from 18,981 kg./ha. to 25,442, kg./ha. It may be noted that the yield rate of Nilgiris district is higher than that of Tamil Nadu. In terms of percentages, the increase in yield of potatoes was 13.40 percent and 12.94 percent for Nilgiris and Tamil Nadu over the period.

The area under potato cultivation shrunk and production declined over the period (1985-86 to 2011-12), however, there was increase in yield (kg/ha.) or productivity over the period in Nilgiris and Tamil Nadu because of technological advancement and incentives provided by the government.

The area under banana cultivation in Tamil Nadu increased from 59,305 ha. in 1985-86 to 94,648 ha. in 2005-06. Thereafter, it declined from 1,15,804 ha. in 2008-09 to 98,887 ha. in 2011-12. That is because there was heavy rainfall leading to decrease in the area of cultivation of banana crop during this period.

The area under banana increased from 21.27 percent in 1985-86 to 26.68 percent in 1990-91, thereafter; it declined to 10.84 percent in 2001-02 and 8.35 percent in 2006-07 and 8.87 percent in 2011-12. The area under banana declined by 12.4 percent during three decades due to urbanisation of Trichirapalli and conversion of farm lands into real estate.

The production of banana in Tamil Nadu increased from 18.40 lakh tonnes in 1985-86 to 53.84 lakh tonnes in 2007-08 and after that it declined to 52.32 lakh tonnes in 2011-12. The trend shows an increase of 33.92 lakh tonnes over the three decades. It increased from 25.06 percent in 1985-86 to 27.78 percent in 1991-92 and after that it declined to 24.09 percent, and 6.81 percent in 1995-96 and 2011-12, respectively. The production level declined by 18.25 percent during 26 year period. This implies that there is change in cropping pattern among majority of the farmers.

The yield rate of bananas in Trichirapalli increased from 45,692 kg./ha. in 1985-86 to 63,382 kg./ha in 1997-98, but it declined to 55,149 kg./ha in 2011-12, whereas in Tamil Nadu as a whole, it increased from 38,788 kg./ha. in 1985-86 to 48,244 kg./ha. in 1997-98 and thereafter it declined to 43,695 kg./ha. in 2011-12. The yield rate (kg./ha.) of Trichirapalli district is higher than that of Tamil Nadu. There is overall decrease in area, production and increase in productivity (kg./ha.) of banana in Trichirapalli district over the period of time.

A majority of the farmers are growing banana crop among the TMC (98 percent) and EMC (87 percent). 70 percent of OBC farmers belonged to TMC and 54 percent of farmers belonged to EMC, respectively. This implies that the majority of the farmers cultivating banana in Trichirapalli district are Hindus. Farmers who belonged SC/STs also participated in cultivation of banana in proportion to their size in the population.

96 percent and 93 percent of farmers are growing potato in Nilgiris district for TMC and EMC respectively. The SC farmers who cultivate potatoes form 24 percent and 20 percent in TMC and EMC respectively. The ST farmers constitute 14 percent and 13 percent for TMC and EMC respectively. More than 50 percent of farmers who cultivated potato in Nilgiris belonged to OBC category.

68 percent of TMC and 73 percent of EMC of farmers are in BPL category. They live in kuccha and semi-kuccha houses (52 percent of TMC and 53 percent of EMC). About 48 percent and 47 percent live in pucca houses. About 64 percent and 73 percent use the mobile phone. But computer and internet facilities are used by a small percentage. It is observed that the majority of them are having poor knowledge to use the modern technology and they do not have adequate marketing channels in the district.

The education years of the head is found to be 9.48 years and 9.73 years for TMC and EMC, respectively. A majority of them had only primary education 73 percent and 47 percent for TMC and EMC respectively. Those with secondary education account for 14 percent and 47 percent respectively. There are only few graduates among TMC and EMC farmers. It is observed that the majority of them have completed primary level of education. We find from the study that those with more year of schooling are the EMC than in the TMC.

The average age of the head is found to be 48 years for TMC and 42 years for EMC in Nilgiris district. The average education of head is found to be 9 years and 6 years in TMC and EMC respectively.

About 80 percent of TMC and 73.3 percent of EMC are having their own bullock carts in Trichirapalli district. About 24 percent and 20 percent have tractors. 64 percent and 40.0 percent of farmers possess motorcycles. Sample farmers have trolley (34 percent in TMC and 46.7 percent in EMC) and 42 percent in TMC and 46.7 percent in EMC have harvest machines respectively.

56 percent in TMC and 60 percent in EMC have their own bullock carts in Nilgiris district. About 44 percent of TMC and 20 percent EMC sample households own tractors. About 36 percent and 67 percent own harvest machines for their own use and for letting them out on rent. A majority of them (66 percent in TMC and 80 percent in EMC) own motor cycles. A sizable section of farmers (40 percent in TMC and 47 percent in EMC) own four wheelers.

It is found that 46 percent in TMC and 53.3 percent in EMC have pump sets in the study area. It is observed that the majority of the sample farmers have adequate infrastructure facilities for cultivating potato.

The median sizes of farms under banana in Trichirapalli are 2.82 ha. and 2.62 ha. for TMC and EMC categories. More than 80 percent own land and leased out land is only 14 percent. And 71 percent of area in the TMC is irrigated and 66 percent of area in the EMC is irrigated through groundwater. Land irrigated through surface water is not much (9.35 percent in TMC and 17 percent in EMC).

The medium size of farm in Nilgiris district is 3.27 ha. in TMC and 4.61 ha. in EMC. The farmers who own land in the sample farm 50 percent and 64 percent in TMC and EMC respectively. The leased land accounted for 50 percent and 36 percent in TMC and EMC respectively. Nearly, three-fourth of the area under potato is irrigated with groundwater in Nilgiris. Only a small area is irrigated with surface water.

A majority of them (TMC, EMC) cultivate groundnuts. Next to groundnuts, they prefer to cultivate banana; about 41 percent and 43 percent are marginal farmers. The small farmers constitute 29 percent and 30 percent among the farmers. The medium size farmers form 26 percent and 19 percent.

During kharif season, the majority of the farmers grow potato, beetroot, carrot, cabbage and garlic. Nearly, 50 percent of the marginal farmers in TMC cultivate potato and carrot. The small farmers cultivate potato in 39 percent of the area and carrot is in 20 percent area. About 25 percent and 17 percent of TMC farmers cultivate potato and carrot respectively. Generally, cauliflowers, beans, beetroot and cabbage are growing during rabi season. A majority of the TMC farmers grow cauliflower during rabi season; it includes 17 percent and 14 percent of medium and large size farmers.

Among EMC farmers, 44 percent, 28 percent and 23 percent are small, medium and large farmers respectively who are engaged in potato cultivation during kharif season. Carrot is a main vegetable cultivated by among small (33 percent), medium and large

farmers (12 percent). During rabi season, 18 percent and 14 percent of large and medium farmers grow beans.

The small and semi-medium farmers occupy the highest share of 36 percent of TMC and 47 percent of EMC, and are followed by marginal farmers who occupy moderate share in banana cultivation. For the potato crop, small and semi-medium farmers found to be 40 percent and 20 percent in TMC and EMC respectively. On the contrary, the lowest share is occupied by large farmers. It is found in the study that majority of the small and semi-medium farmers use land for cultivators of banana and potato crops in a productive way.

The average family size for TMC varied from 3 to 5, whereas for EMC it varied from 3 to 4 for banana cultivation. In potato cultivation, the average family size varied from 4 to 5 for both TMC and EMC.

The sample farmers are found to be in the age group 45 years to 61 years for TMC, whereas for EMC, the age group is 46 years to 53 years. It is noted from the study that a majority of sample respondents belonged 30-60 years; it implies that farmers in productive age group are engaged in farm activities.

The consumption of fertilisers for banana crop is estimated to be 138.6 kg/ha. and 144 kg/ha. for TMC and EMC respectively. In the case of potato crop, it was 533 kg/ha. and 556 kg/ha. Banana crop cultivation depends on ground water and canal water source like Cauvery water sources; but for potato crop cultivation farmers depend upon ground water and surface water.

The share of hired labour cost in total labour cost incurred by banana growing farmers is 55.5 percent and 62.3 percent for TMC and EMC respectively. It is 54.6 percent and 73.9 percent respectively for potato growing farmers. Banana growing farmers incur more labour cost than potato growing farmers. The total labour cost for banana crop is calculated to be Rs.46,792 per ha. and Rs. 45,568 per ha. for both marketing channels and it is Rs.36,349 per ha. and Rs.38, 539 per ha. for potato growing farms. The number of days used by hired labour for banana crop is the highest share of 58.2 percent and 51

percent for TMC and EMC respectively. The banana cultivators spend more on labour cost than potato cultivators due to long gestation period taken for cultivation of banana crop (12 months) than potato crop (3 months).

The total cost of cultivation per hectare incurred by banana cultivators worked out to Rs.84, 803 and Rs.79, 629 for TMC and EMC, respectively, whereas, for potato crop, it worked out to Rs.83, 300 and Rs. 87,927. It is found that banana cultivators have incurred higher cost hired labour, which accounts for 30.64 percent and 35.67 percent for TMC and EMC respectively.

Potato growing farmers used more fertilizers i.e., 533 kg/ha. and 556 kg/ha. for TMC and EMC respectively than banana cultivators. It is 139 kg/ha. and 144 kg/ha for banana crop.

The production for banana crop worked out to 24,500 quintal for TMC and 6,670 quintal for EMC while, production for potato crop is worked out to be 14,593 quintal and 5,760 quintal for both the channels. The overall productivity of banana crop worked out to be 173.51 qt/ha. and 165.92 qt/ha. for TMC and EMC respectively. But for the potato crop, it is found to be 89.09 qt/ha. and 82.53 qt/ha. The banana cultivators in the study area do not believe in emerging marketing due to new introduction. Emerging marketing are expecting quality in product; top priority will be given to high quality product only, otherwise, the product will rejected by EMC in the farm field alone. On the other hands, in the TMC, traders also accepted the moderate and high and low quality products.

The farmers growing banana realised a gross return of Rs. 2,59,780 and Rs. 2,85,970 per ha. for TMC and EMC respectively, while it is Rs. 1,42,675 and Rs.1,38,771 per ha. for potato cultivators. It is found that the EMC cultivators are enjoying higher gross return (9.16 percent) than TMC for banana cultivators. But the potato cultivators under TMC are enjoying higher gross return (2.73 percent) than that of potato cultivators under EMC. The average yield of banana is 173.5 qtl./ha. and 166 qtl./ha., whereas that of potato crop is 89.1 qtl./ha. and 82.5 qtl./ha.

The cost of cultivation for banana crop is Rs. 84,803 per ha. and Rs.79,628 per ha. for TMC and EMC. But for the potato cultivation, it is Rs.83,300 and Rs.87,927 per ha. Among the banana growers, TMC farmers spend more amount of Rs. 5,175 (6.10 percent) than EMC farmers. TMC farmers spend more amounts for banana crop. Within potato growing farmers, EMC farmers spend more amount of Rs.4, 627 (5.26 percent) than TMC. This implies that the EMC farmers incur higher cost on cultivation than TMC farmers.

The market prices received by banana cultivators are found to be Rs. 1197 and Rs. 1120 for TMC and EMC, respectively. Within the marketing cost, commission is the leading cost incurred by the sample farmers, which is Rs.18 per quintal for TMC; transport cost is Rs.12 per quintal, while it is Rs. 3.12 for EMC. The average net price received by banana crop farmers is Rs.1164 for TMC and Rs.1116 for EMC. It is observed that the majority of the sample farmers only prefer TMC system.

The average market price received by potato cultivators worked out Rs.1320 and Rs.1187 for TMC and EMC, respectively. TMC farmers have spent more on marketing cost than that of EMC. The commission is one of the important costs is in TMC, while there is no commission charge in EMC. The transportation cost is calculated to be Rs.51 and Rs.46 for TMC and EMC, respectively.

The Benefit-Cost ratio for banana cultivators is 5.78 percent and 5.09 percent for EMC and TMC, respectively. But for the potato cultivators, it is 2.25 percent and 1.44 percent. The banana cultivators benefited more than the potato cultivators.

About 26 percent of TMC and 27 percent of EMC banana cultivators had chosen due to the force of habit. Remaining 20 percent cultivators had chosen such a marketing channel due to the influence of their friends. For potato cultivators, 24 percent and 27 percent preferred such a marketing channel because of assured sale.

About 76 percent of TMC and 67 percent of EMC farmers reported that the post-harvest losses are main problems for all banana cultivators. The post-harvest losses are arising due to the perishable nature of the commodity and lack of storage facilities in the farm field.

About 78 percent and 93 percent of the farmers were of the opinion that the long distance to market place is one of the important causes. A majority of them (70 percent and 87 percent) expressed the view that they wait some times for better prices; if there is no increase in prices, they incur huge losses. In the case of potato cultivators, 66 percent and 67 percent emphasized the perishable nature of the commodity and 76 percent 93 percent of them reported lack of storage facilities in the market as a major handicap. Lack of storage facilities, long distance from farm field to market place and perishable nature of the commodity in the both the districts are the major problems faced by the sample farmers during post-harvest period.

About 46 percent and 80 percent of banana cultivators of TMC and EMC reported that they received information by personal effort. About 66 percent and 80 percent of potato cultivators reported that they received information by personal effort. Farmers in the neighbourhood also supply information regarding prices accorded respondents in both market channels.

A majority of the banana and potato cultivators for both TMC and EMC reported that they received information regarding prices at the time of sale alone. About 80 percent of the potato cultivators for both marketing channels reported that they accepted existing price in the market. Banana cultivators, in both TMC and EMC system reported that they received information regarding existing price in the market. It is noted that the majority of the potato cultivators received correct information regarding price than that of banana cultivators in both marketing channels.

Among banana and potato cultivators, about 50 percent of banana cultivators in TMC expressed the view that commission agents /whole sale dealers/ retailers are involved in price fixation. On the other hand, 40 percent of banana cultivators and 47 percent of potato cultivators in the EMC reported that self-help groups and retailers participate in price fixation. It is observed that the majority of the sample farmers in TMC depend upon agents (like commission agents /whole sale dealers/ retailers) than farmers in EMC in the study area.

A majority of the banana cultivators sell their produce within the State as Trichirapalli is famous for banana cultivation. Within the district the farmers intend to sell their produce in Kattuputhur Co-operative Banana Market. On the contrary, potato cultivators sell their produce within the district and neighbour States like Kerala and Andhra Pradesh. A majority of them sell their produce in Metupalayam co-operative potato market federation and to other private agents and Kerala whole sale dealers.

About 73 percent and 87 percent of banana and potato cultivators reported that they received inputs from buyers in EMC. On other hand, in both the districts TMC cultivators reported that they received minimum level of inputs than in EMC for banana and potato cultivation. A majority of them reported that they utilised the money for purchase of fertilisers, pesticides alone and not for other purposes. About 48.3 percent and 50 percent of banana cultivators received fertilisers from the buyer. About 84 percent and 50 percent of potato cultivators belonging to both the marketing channels borrowed the amount from buyers.

About 74 percent and 80 percent of banana cultivators and 40 and 80 percent of potato cultivators (TMC and EMC) expressed the view that the conditions of the roads are very bad. A majority of them in Trichirapalli expressed the view that they sell away their produce within a distance of 10 to 25 kms.

For the potato crop, they travel 10 to 50 kms for selling their produce from hilly area to plains. A majority of them reported that they sell their produce in Mettupalayam co-operative market and to private agencies in Nilgiris district. It may be noted that the majority of Nilgiris farmers travel long distance 25 to 50 KMs to sell their produce than farmers of Trichirapalli district (10 to 25 KMs).

About 82 percent and 80 percent of the banana cultivators and 42 percent and 73 percent of the potato cultivators in TMC and EMC respectively reported that there is lack of godown facilities. A majority of them reported that they need adequate godowns to preserve their farm produce.

Farmers reported that they do not have any adequate cold storage facilities. About 36 percent and 67 percent of banana cultivators and 44 percent and 73 percent of potato cultivators of both the channels respectively expressed that cold storage facility not available in the market.

About 50 percent and 82 percent of banana and potato cultivators of TMC depend upon in the commission agents and 88 percent and 80 percent of EMC cultivators reported that nearly three to four kinds of agents are involved in the buying activities. In EMC, 70 percent and 77 percent reported that they have dealing with SHGs/ direct sale respectively. 76 percent and 73 percent of the cultivators in the EMC their produce without any intermediaries.

74 percent of TMC and 93 percent of EMC cultivators sell their banana produce within the district. A majority of them sell in Trichy open market, Kattuputhur banana crop co-operative society. In the case of potato crop, majority of them sell in the Mettupalayam potato co-operative society. The remaining cultivators sell their produce to Kerala wholesalers and other State sellers.

About 100 percent and 80 percent of banana crop cultivators and 74 percent and 80 percent of potato cultivators of TMC and EMC respectively agreed and reported that the government should help them by fixing fair market price.

About 100 percent and 74 percent of TMC farmers reported that the government should stop the involvement of commission agents in marketing the produce. About 88 percent, 80 percent of banana cultivators and 60 percent and 80 percent of potato cultivators (TMC and EMC) reported that the government should create cold storage facilities. A majority of them expect that government should interfere in the problem and has to enact the measures to ameliorate the situation.

About 48 percent and 40 percent of banana cultivators and 26 percent and 40 percent of potato cultivators reported that produce of good quality is accepted. A lot of farmers accept the TMC is a better marketing system than the EMC system.

The popularization of EMC in the market, the government can face a number of problems. Immediately, we cannot change the farmer's regular practices in the market. The farmers have to be induced by the facilities like subsidies, physical and financial supports for spending among the farmers EMC. About 40 percent of banana cultivators reported that they are needed support for the EMC farmers.

About 56 percent and 20 percent of banana cultivators of TMC and EMC reported that they are willing to reduce the role of the commission agents. This indicates that the commission agents give more hurdles to the farmers. The government should take more steps to reduce commission agents. About 24 percent and 13.3 percent of TMC and EMC reported that they are provided with cold facilities for potato crop. It is noted that the majority of the cultivators in could not get adequate cold, storage facilities.

### **5.3 Policy Implications**

As a result of the impact of emerging marketing system, benefit from it producers-sellers of banana and potato crops. The farmers and consumers are really exploited by the middle men during the transaction of commodities in the traditional marketing system. Over a period of time in spite of a number of acts, rules and regulations enacted by the union and state governments in India there is not much improvement in the farmers' level of living. In India, the agriculture and other markets are fully controlled by middle men and whole sale dealers. Therefore, there is urgent need for the government intervention to address the concerns of the farmers. The main objective of the emerging marketing system is to promote direct selling of agriculture produce in the market. The crucial objective of emerging marketing system is increasing profits to the farmers in Tamil Nadu. Against such backdrop, the following are some of the specific policy suggestions.

- The Government should encourage the direct selling of agricultural produce in the market
- The government should build rural infrastructural facilities to connect the rural areas to market place.

- The cold storage facilities may be made available at least in every village panchayat at free of cost.
- Government should open procurement centres at least within a distances of 10 kms at the time of harvest seasons of banana and potato crops.
- Government can fix the price rate for banana and potato crops based on cost-benefit ratio.
- Government can create banana processing company in Trichirapalli district because of the high production of banana crop in the district.
- Government should create potato processing company in Nilgiris district.
- The government should create the procurement centres at different hill stations in Nilgiris district to avoid harvest losses for farmers during transportation.
- Government should encourage farmers through subsidies.
- The co-operative system is to be strengthened for selling their agricultural produce (banana and potato crops) in the districts.
- The separate board of inspection committees to be established at every block level to control the role of middlemen.
- Awareness camps are too organised by the government, corporate companies and NGOs among the farmers and consumers.
- The agricultural marketing system to be totally controlled by the union and state governments for the welfare of the farmers and consumers and for controlling inflation.
- The middle men and wholesalers to be controlled by the government with the help of strict rules and regulations. The rules and regulations are implemented rigorously by the government officials.
- Government to give compensation to the farmers whenever there is damage to crops due to heavy rainfall (if any) for banana cultivators and land slips for potato cultivators.
- Price information to be given to the farmers at the village level.

- Regulated markets to be strengthened in Tamil Nadu for the welfare of the farmers.
- Government should make export zone for banana crop in Trichirapalli and for potato crop in Nilgiris districts.
- The export of bananas and potatoes through CARCO to be provided incentives.
- In the export of bananas and potatoes to the foreign countries, the government should provide guidance and support to the farmers.

In Tamil Nadu, traditionally, the farmers have been using the TMC system because of customs and habits of the farmers. Therefore, they are familiar with system. The conclusion is that the majority of the sample farmers in the study area are used mostly TMC and not EMC. There is no don't that the EMC will promote the marketing of quality produce (e.g., bananas and potatoes) and will save the producers-sellers from exploitation by middlemen (e.g., commission agents).

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